MARCH 5, 1955

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MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING •

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

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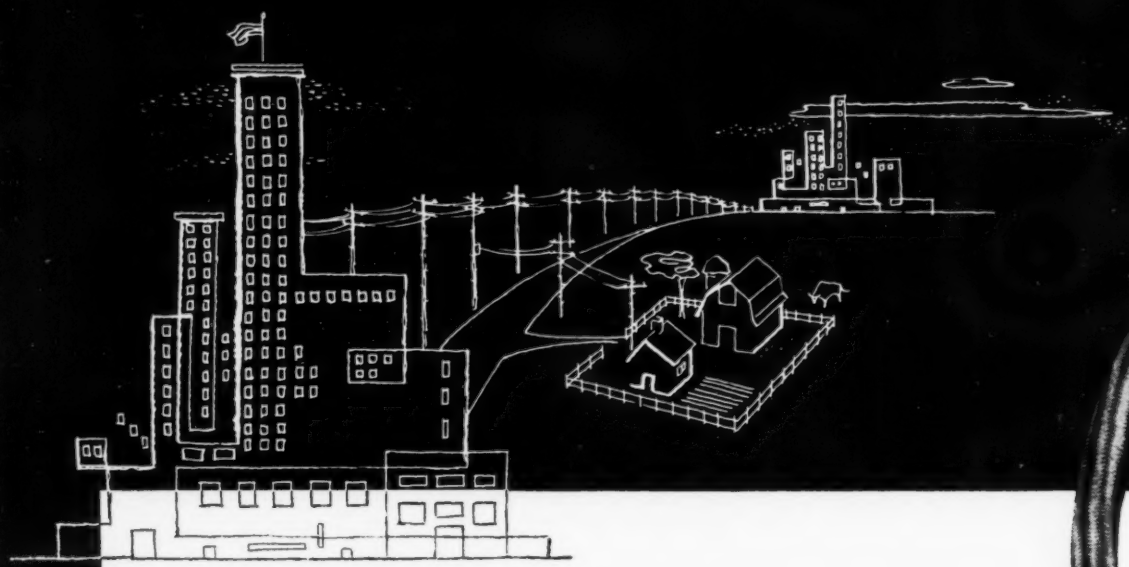
10,497 of Which 9,981 is Paid

XUM



Are you happy with your profits (or losses) on short-haul tolls?

If expensive recording and billing expenses are reducing the *gross* income from your short-haul tolls to zero—or to a loss, you need the Stromberg-Carlson XY* Toll Ticketing system.

Here is Electronics at its time-saving, money-making best! From the moment a subscriber reaches a trunk to a toll point to the moment conversation is completed and the receiver replaced, the XY Toll Ticketing system answers, monitors, verifies, records and computes the data. It even prints it on a uniform ticket from which billing is made.

- **XY Toll Ticketing is unattended—the first *person* concerned is whoever gathers up the printed tickets each morning.**
- **XY Toll Ticketing's recorder has a storage capacity of 100 calls per trunk—and will automatically clear itself when near-capacity is reached or a pre-determined playback time comes around.**
- **XY Toll Ticketing will work with *any* system in which connections are made in direct response to the subscriber's dialing operation.**
- **XY Toll Ticketing includes control circuits by which trunks in remote offices can be "read" and their stored information played back to one central ticketing source.**
- **XY Toll Ticketing's magnetic tape, electronic tubes and mechanical components are built to *last* far beyond even high standards of performance.**

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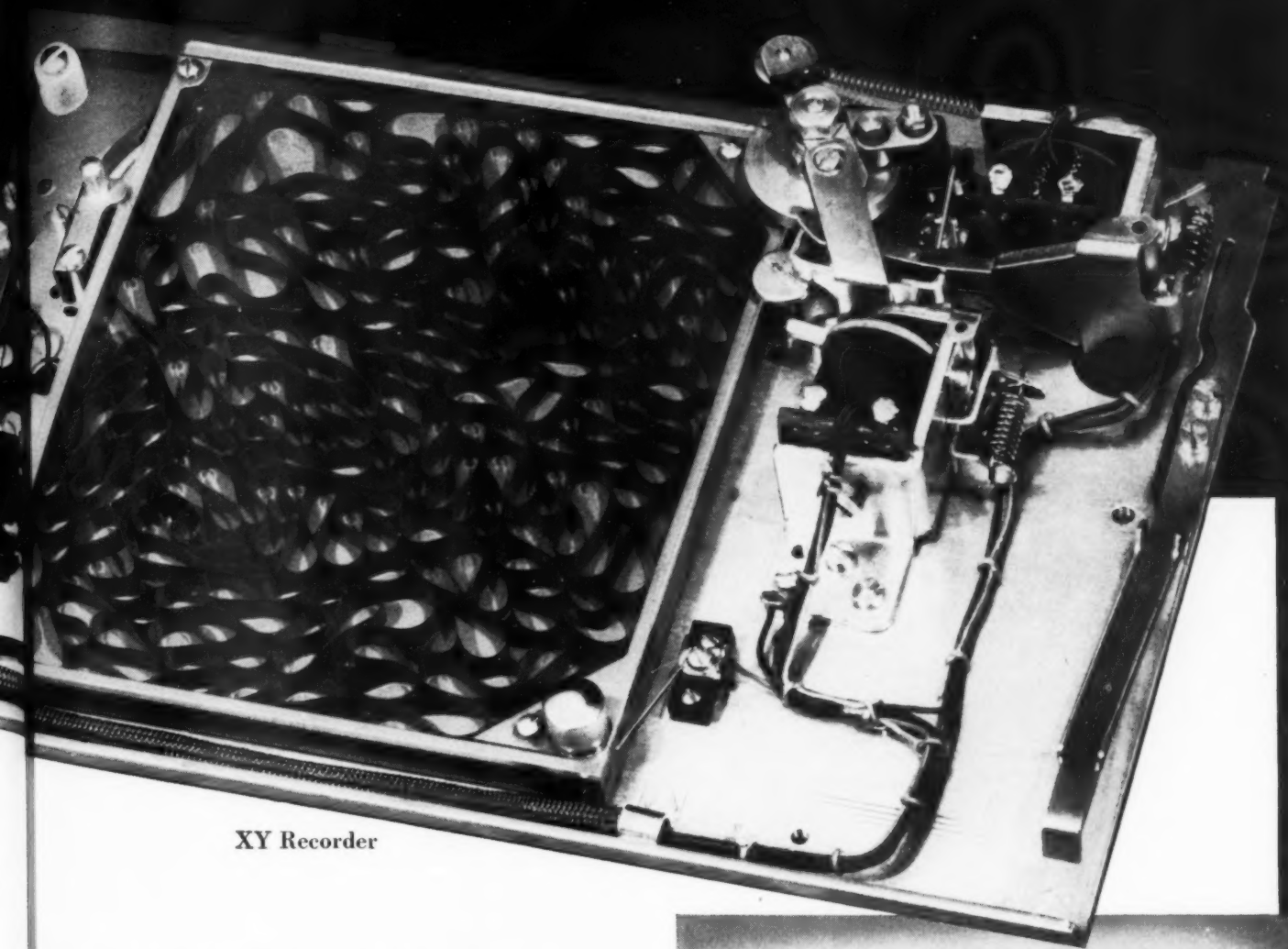
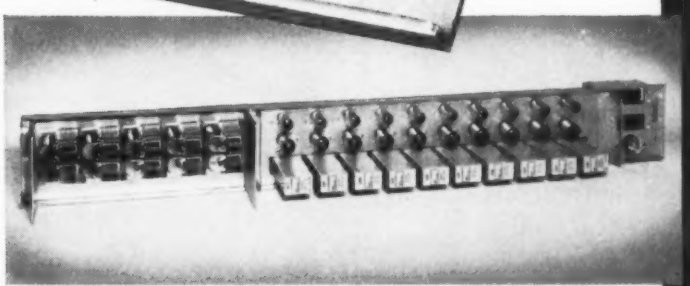


XY Recorder

- **XY Toll Ticketing is one of the soundest investments you'll ever make—since, with it, A-B toll operation ceases to be a headache and becomes profitable.**

These are the main components of the XY Toll Ticketing system:

- **XY Recorder—with endless magnetic tape and automatic playback.**
- **XY Identifier Circuit, to identify thousands, hundreds, tens, and units digits of the calling party's number.**
- **Printing and Cutting Unit—basket holds up to 2500 tickets.**



Identifier Circuit

Printing-Cutting Unit

Stromberg-Carlson®

FACTORY, GENERAL OFFICES: ROCHESTER 3, NEW YORK

Atlanta 3, Ga., Chicago 6, Ill., Kansas City 8, Mo., San Francisco 3, Calif. Manufacturing Branch, Dallas, Texas.

*Reg. U. S. Pat. Off.

XUM

Russell, Kansas Cutover

Joseph Galik, Federal Telephone and Radio Company installation foreman, with new Federal Step-by-Step equipment at the Russell, Kansas exchange.

Called "Smoothest" in Recent Years

Federal Step-by-Step Installation By Kellogg Highlights $600,000 Plant Improvement

Within three minutes after the old lines were cut, Mayor William H. Ochs of Russell, Kansas, made the first call inaugurating the city's new dial telephone system. Officials of the United Telephone Co. of Kansas declared the recent conversation to Federal Step-by-Step as the "smoothest" cutover in recent years.

Purchased in 1926 when there were only 600 subscribers, the Russell exchange has grown to 3,500. J. G. Kreamer, vice-president and general manager of United reports that the $600,000 improvement of the Russell exchange is part of a modernization program that will soon extend to the company's other exchanges throughout the state.

Low Maintenance Cost

Sold exclusively by Kellogg Switchboard and Supply Co., Federal Step-by-Step is ruggedly built and functionally designed. The simplicity of its equipment and circuits makes it easy to maintain and inexpensive to operate. Its compact arrangement saves space. The flexibility of Federal Step-by-Step permits quick, low-cost expansion to meet increased station and traffic requirements.

For Small or Large Requirements

For large requirements, Federal Step-by-Step MSX equipment economically accommodates any required line capacity, ranging from 500 to 600 lines to as many as the telephone requirements of a large city exchange. For the smaller town or community, Federal's Step-by-Step Community Dial Exchange (CSX) gives thrifty, dependable performance up to 900 lines and is a reliable answer to dial conversations.

More Information Available

An interesting and informative bulletin is available from Kellogg that will give you important facts about how Federal Step-by-Step can fit into your operations. A request on your letterhead will bring this bulletin to you.

NEW HOME. Just completed last spring, the new 50' x 90' brick building houses both the Federal Step-by-Step Dial Switching Equipment and the business offices. Building was designed by Elvin Durr of United.

FIRST CALL. William H. Ochs, Mayor of Russell, Kansas, places the first call inaugurating the new Federal Step-by-Step dial switching equipment. In one hour during the first day of use, the new dial switching equipment handled four times as many calls as could previously be handled by the old manual equipment.

CUTOVER SCENE. Walter Davin (with back to camera) manager of the Russell Exchange, stops to talk to Douglas Gleason, secretary of the Kansas Telephone Association, during cutover ceremonies. Looking on is J. G. Kreamer, vice-president and general manager of the United Telephone Co. of Kansas and R. W. Engsberg, sales engineer for Kellogg Switchboard and Supply Co.

KELLOGG — DIVISION OF IT&T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

A Division of International Telephone and Telegraph Corporation

SALES OFFICE: 79 West Monroe Street, Chicago 3, Illinois

Warehouses: Chicago 38 • Kansas City 1 • Mansfield, Ohio • St. Paul 4 • Dallas 2 • San Francisco 3

Branch Offices: New York 7 • Portland 5 • Los Angeles 13

Export: International Standard Electric Corporation, New York 7, N. Y., U. S. A.

XUM

FLASHES AND PLUGS

DEAD OF NIGHT. The wife of a South Milwaukee, Wis., policeman likes to assure her husband that she is a light sleeper and awakens virtually at the drop of a pin.

When the copper got home from work at midnight the other night, he couldn't find his key. He rang the doorbell, confident that his wife would let him in a jiffy. No response.

He pounded on the door. He looked for windows he could jimmy open.

He pounded on the side of the house. His wife slept on blissfully.

The practically unwelcome husband went back to the police station and tried arousing his wife by telephone. She didn't answer.

He went home and pounded on the house some more. Finally, ye sleepy wifey came to the door and wanted to know what the ruckus was about. Hubby reported he had been trying for three hours to awaken her.

"Are you sure you knocked loud?" she asked suspiciously. "I'm a very light sleeper, you know."

• • •

ROBIN HOOD'S BARN. The telephone rang at Polyclinic Hospital, St. Louis, and a voice demanded a connection with the nurse in charge of the seventh floor of the private ward.

"I'm calling to find out about John Doe," this nurse was told when she picked up her receiver. "How's he progressing?"

"Just fine," said the nurse.

"And when will he be allowed to go home?" the voice continued.

"Saturday morning," said the nurse, "and may I ask who this is calling?"

"You may," said the voice, with a chuckle. "I'm John Doe. Nobody would tell me anything around here!"

• • •

IN EACH CLOUD, A LINING. A long overdue telephone subscriber finally answered a third collection letter.

"Your collection letters are the best I've ever seen," he wrote, "In fact I copied them and have collected some of my worst accounts.

"I figure your final letter must really be a dandy, so am waiting for it before I pay my bill—I want to use it on some really bad accounts."

• • •

CANDIDLY SPEAKING. At a telephone convention, reports a reader, a representative of the reader's company was introduced to the executive of another Independent telephone company. In the course of their conversation, he asked the officer, "How many people work for your company?"

The executive pondered the question a moment, then replied: "About two-thirds, I'd say."

CIRCULATION

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For ALL your Wire and Cable Needs

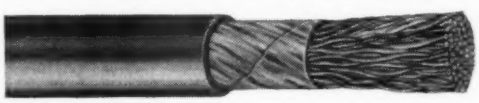
SIX PAIR RURAL DISTRIBUTION CABLE

The completely color-coded cable which has gained widespread acceptance as the most economical way to extend rural service. Construction is similar to that of 16 Pair Distribution Cable described at right. Easy to install—excellent electrical characteristics. Can also be used as multiple drop wire to small apartments and office buildings.

TELECABLE EXCHANGE AREA CABLE

Exchange Area Cable for aerial and duct use with polyethylene insulation and polyethylene sheath . . . the thermoplastic sheath that provides lasting protection. This cable has excellent transmission characteristics and can be depended upon to give long trouble-free service. Sizes up to and including 202 Pair available.

TELECABLE INSIDE WIRING CABLE



Telecable Inside Wiring Cable has semi-rigid Plastite® insulation and brown or ivory Plastite jacket. It is light in weight and water resistant. Unaffected by humidity, Telecable inside wiring cable is ideal for duct work. Its long life assures low maintenance costs. 6 to 76 pair available.

A full line of carefully engineered and manufactured wires and cables is available for your needs.

NEW 16 PAIR DISTRIBUTION CABLE

THE MOST ECONOMICAL TEMPORARY METHOD OF EXTENDING SERVICE TO GROWING RESIDENTIAL AREAS

- **EXCELLENT ELECTRICAL CHARACTERISTICS**
- **EASY TO INSTALL**

Low-loss transmission—Low capacitance—High dielectric strength—Weather resistant.

Each individual conductor has No. 19 AWG soft copper conductors, polyethylene insulation and polyvinyl chloride jacket, completely color-coded.

Paired conductors twisted around polyethylene covered, high strength steel core.

DESIGNED FOR ECONOMICAL INSTALLATION

Light weight—Long lengths—Self supporting.

No crossarms needed.

Cable can be attached to the pole, making a neat, inconspicuous installation and requiring a minimum of trimming in wooded areas. On poles with crossarms already filled, capacity can be increased by 16 pairs by attaching this cable to the pole below the crossarms.

When necessary . . . this cable can be taken down and reused.

Reduce outside plant installation cost by using Whitney Blake Sixteen Pair Distribution Cable. Order some today from distributors of Whitney Blake products.

Well Built Wires Since 1899

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WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT

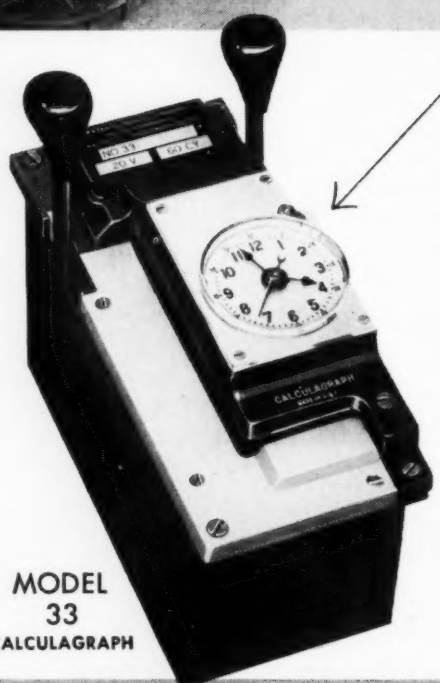
XUM

Here's why *modern* exchanges use

CALCULAGRAPH

Photo Courtesy of STROMBERG CARLSON CO. and THE PENINSULAR TELEPHONE CO.

–for QUICK, ACCURATE, AUTOMATIC toll time recording!



MODEL 33 CALCULAGRAPH

Busy exchanges throughout the world are using Calculagraphs because they produce quick, accurate, automatic toll time records. Accurate to-the-second, printed records eliminate switchboard detail work and assure you of collection of all revenue due on every call. CALCULAGRAPHS are precision instruments with high visibility clock dials, easy to operate — featuring smooth silent lever action.

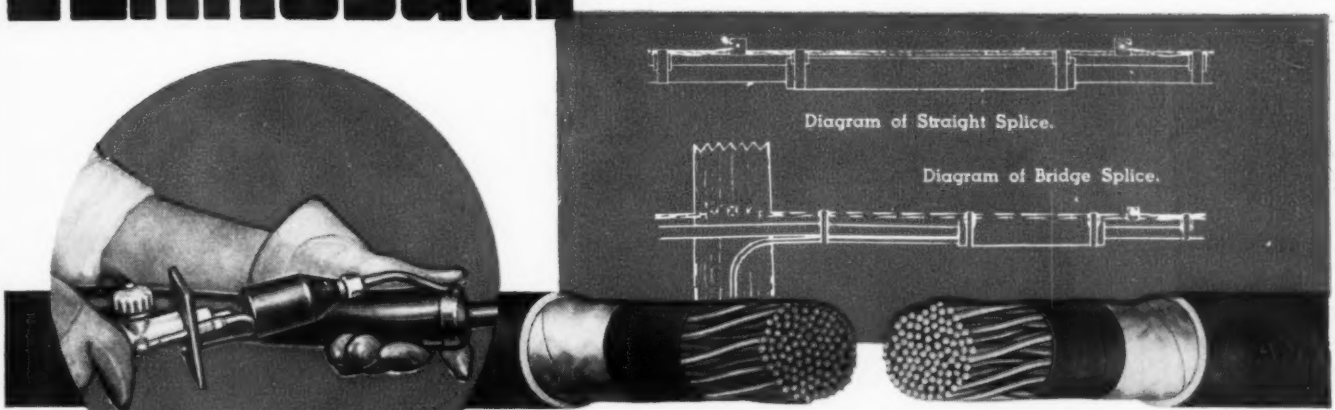
For complete information on the various models available write to —

CALCULAGRAPH COMPANY

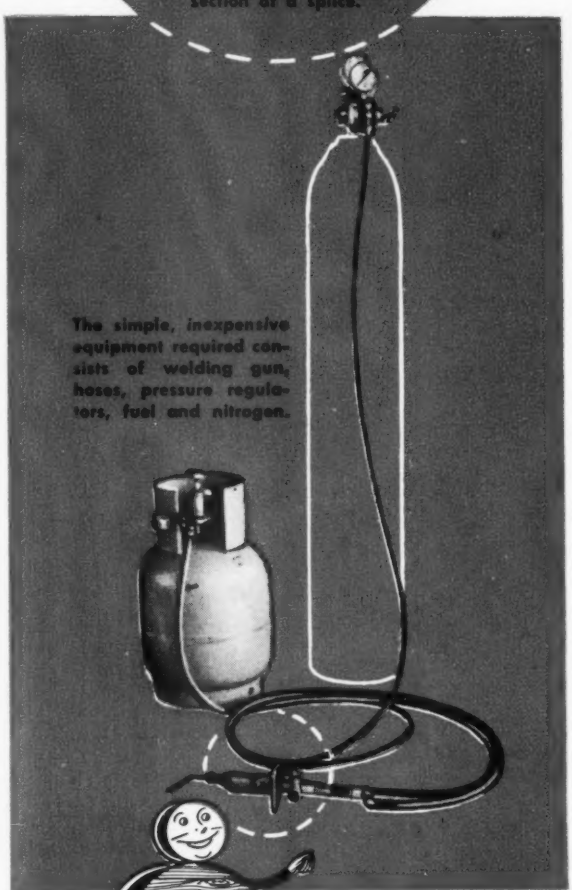
HARRISON • NEW JERSEY

THE STANDARD OF ACCURACY SINCE 1892

New low cost equipment for making Hot Gas Welded Splices on ANSONIA Ankoseal® all plastic Cable



The completed end section of a splice.



The simple, inexpensive equipment required consists of welding gun, hoses, pressure regulators, fuel and nitrogen.

In place of an electrically heated gun, one is now available that uses fuels which are readily obtainable — either propane or acetylene.

To users of Ankoseal Cable it offers an economical hot gas welded splicing procedure that will extend the opportunities of utilizing Ankoseal's advantages. It is applicable to straight, bridge and split-sleeve type splices.

The technique is not intended to replace the eminently satisfactory Ankoseal Tape and Lead Sleeve Type Splices but is offered as another way to do the job that may be preferred by some. It is a thoroughly perfected technique in which extensive engineering, research and development by Ansonia Engineers have been amply confirmed by actual field installations of Ankoseal Cable. The completed splice may be pressure (flash) tested.

Order your gas heated plastic welding unit direct from *D & R Plastic Welders, Inc.*, P. O. Box J, Hazardville, Conn. Available as follows:

Code number	Type of unit	Price
ATGA-1	Complete acetylene welding outfit	$160.00 each
ATGA-2	Acetylene gun only	79.50 each
ATGP-1	Complete propane welding outfit	150.00 each
ATGP-2	Propane gun only	79.50 each

All of the above items include two ten feet lengths of hose. Additional 25 feet lengths may be obtained as required to meet specific field conditions. Nitrogen and fuel must be procured separately.

ATE-3 Two additional 25 feet lengths of hose $11.00 per pair

Splicing material — plastic welding rod, spacer strip and sleeves — may be obtained thru authorized Ankoseal Cable distributors.

Write for manual of procedure and any additional information desired.

THE ANSONIA WIRE & CABLE COMPANY

ANSONIA, CONNECTICUT

"Sonny yo

WRITE FOR NEW CATALOG

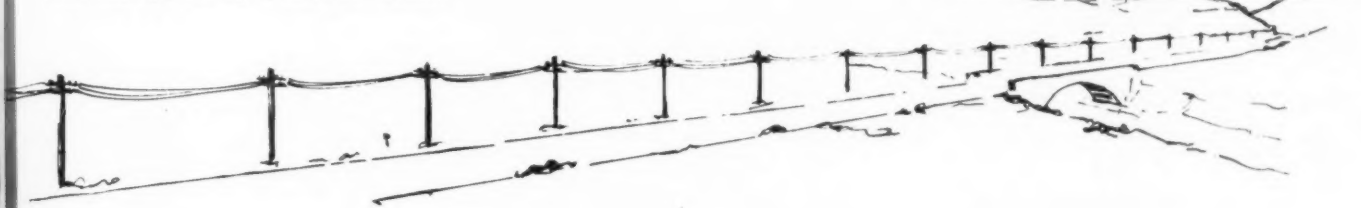
LEIC

you sound like you're right here in the room"

Grandma . . . it's that new LEICH 100 telephone

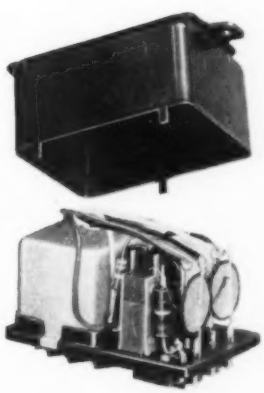
It's positively amazing the difference a telephone can make. You'll hardly believe it yourself until you install Leich 100 telephones and become a hero overnight. On long or short lines, your subscribers will tell you that — never before have they heard so clearly and well.

This is a truly beautiful, sturdily made, dependable telephone. But the great improvement in transmission and reception, on all line conditions, is what will really please your customers — for many, many years to come.



This amazing improvement in transmission is made possible by the Western Electric T1 transmitter and U1 receiver which are standard equipment in the Leich 100 telephone. To maintain the gains produced by these units, Leich uses the 100 network which is made under license from Western Electric. This network permits maximum transmission on long loops and controls it on short ones.

Order one of these greatly improved Leich 100 telephones today. Try it — see . . . **and hear** for yourself.

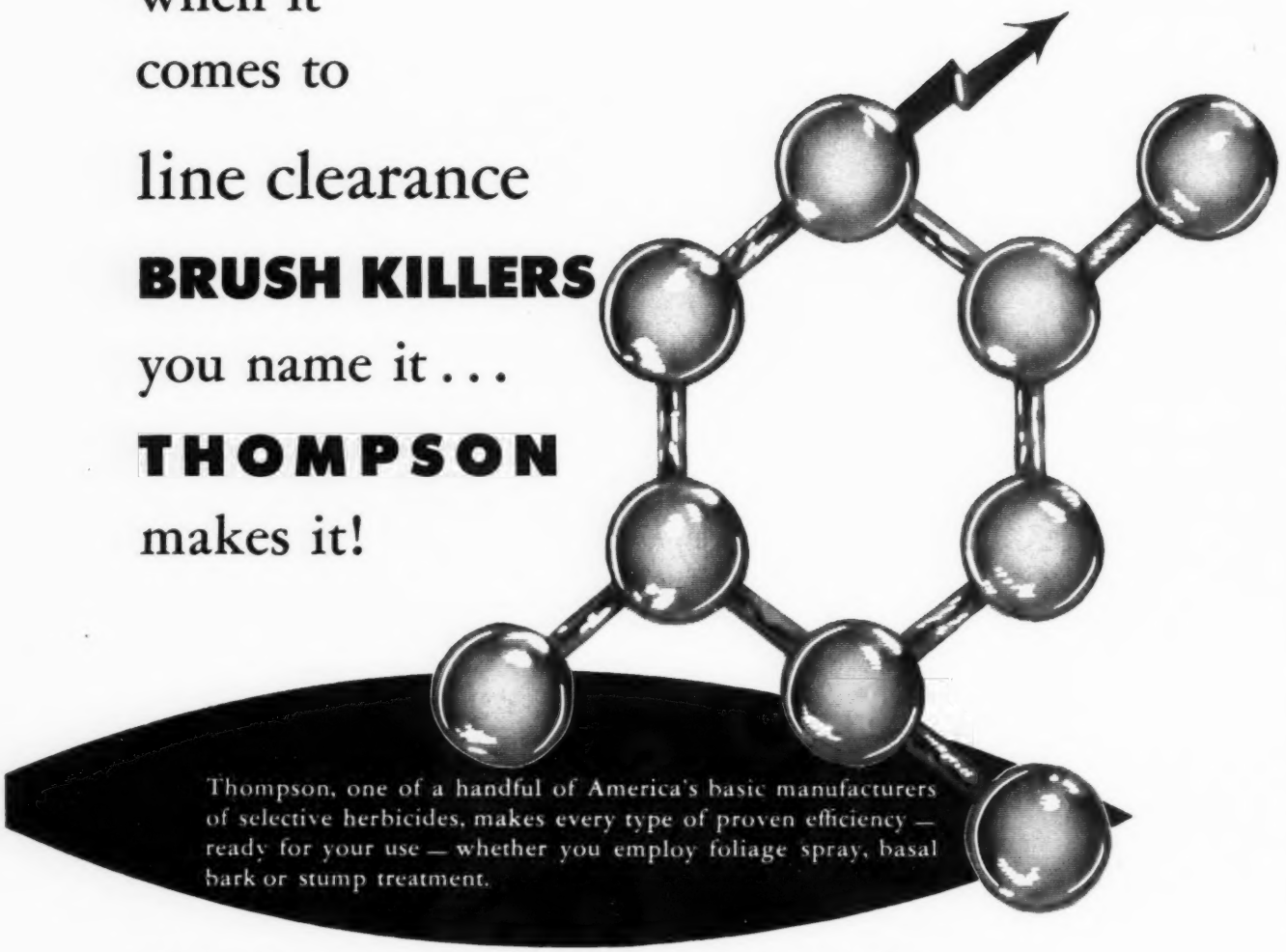


MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907
LEICH SALES CORPORATION 427 W. RANDOLPH STREET CHICAGO 6, ILLINOIS
PACIFIC COAST: 2611 SAWTELLE BLVD., LOS ANGELES 64, CALIF. SOUTHWEST: 1227 SLOCUM ST., DALLAS 7, TEXAS

GENERAL SYSTEM

XUM

when it comes to line clearance **BRUSH KILLERS** you name it . . . **THOMPSON** makes it!



Thompson, one of a handful of America's basic manufacturers of selective herbicides, makes every type of proven efficiency — ready for your use — whether you employ foliage spray, basal bark or stump treatment.

LOW VOLATILE

BRAMBLCIDE 5 — L. V.
2,4,5-T

BRAMBLE-WEEDICIDE 5 — L. V.
2,4-D — 2,4,5-T

CONTROLLED VOLATILITY

BROAD SPECTRUM — PENTYL ESTERS

BRAMBLCIDE
BRAMBLE-WEEDICIDE
BRAMBLCIDE 5
BRAMBLE-WEEDICIDE 5

BROAD SPECTRUM . . . or LOW VOLATILE . . . whichever you prefer, Thompson's delivers *more kill per gallon* because every gallon is fortified with a new and exclusive surfactant perfected in the Thompson laboratories. No other "creeping agent" duplicates its performance.

MORE GALLONS PER DOLLAR . . . when you specify Thompson you get a finished product from the basic producer . . . your most economical method of buying.

for most efficient kill at lowest cost*

NEW!

Thompson's exclusive Poison Ivy-Oak Bomb. Shoot noxious plants dead — roots and all. Stop future regrowth. Place a bomb on each truck for linesmen's use. $12.00 (case of 12 bombs)

SPECIFY . . . Thompson Chemicals — FIRST NAME IN BRUSH KILLERS

Order through
Buckeye Telephone & Supply Co.
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Leich Sales Corp.
Or Direct

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St. Louis 3, Mo. Los Angeles 27, Calif.

**Write for station paper 19. It provides latest research on right of way herbicides, their selection and application.*

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Whittier, California . . . goes dial with HOLTZER-CABOT

with these results:
improved service for customers
. . . more economical operation for the company

Phone service in Whittier has been more dependable and more convenient since the General Telephone Company of California installed Holtzer-Cabot Five-frequency Synchromonic Ringing Machines. What's more, the machines' efficient, maintenance-free operation is giving the company maximum economy.

In this installation, the AC set operates from 220 volts, 60 cycles, three phase, and delivers 20, 30, 42, 54 and 66 cycles ringing current at 150 watts. It also generates ½ ampere of direct current for coin control. A stand-by DC machine, which operates from 48 volts, has the same output characteristics as the AC set.

The tone alternator interrupter unit provides 500 cycles and 600/120 cycles for dial and busy tones. This unit is equipped with Holtzer-Cabot Permanent Magnet Generators which utilize Alnico, the powerful magnetic material. There are *no* brushes, slip rings or commutators — thus, costly maintenance is eliminated.

If you have an installation or maintenance problem — consult Holtzer-Cabot, the first choice of telephone companies — because of proven dependability and superior performance.

Above photo: Holtzer-Cabot equipment as installed in Whittier, Calif.

This equipment was installed to replace other ringing equipment which was inadequate for the area serviced.

NATIONAL PNEUMATIC CO., INC. AND **HOLTZER-CABOT** DIVISIONS

125 Amory St., Boston 19, Mass.
Sales Service Representatives in Principal Cities throughout the World

Designers and manufacturers of mechanical, pneumatic, hydraulic, electric and electronic equipment and systems

Holtzer-Cabot Telephone Equipment
Division of National Pneumatic Co., Inc.
Boston 19, Massachusetts

Please send me complete data on tone alternator-interrupter units and Holtzer-Cabot multi-frequency ringing machines.

NAME_____

TITLE_____

COMPANY_____

CITY_____ ZONE_____ STATE_____

Buy Your CABLE

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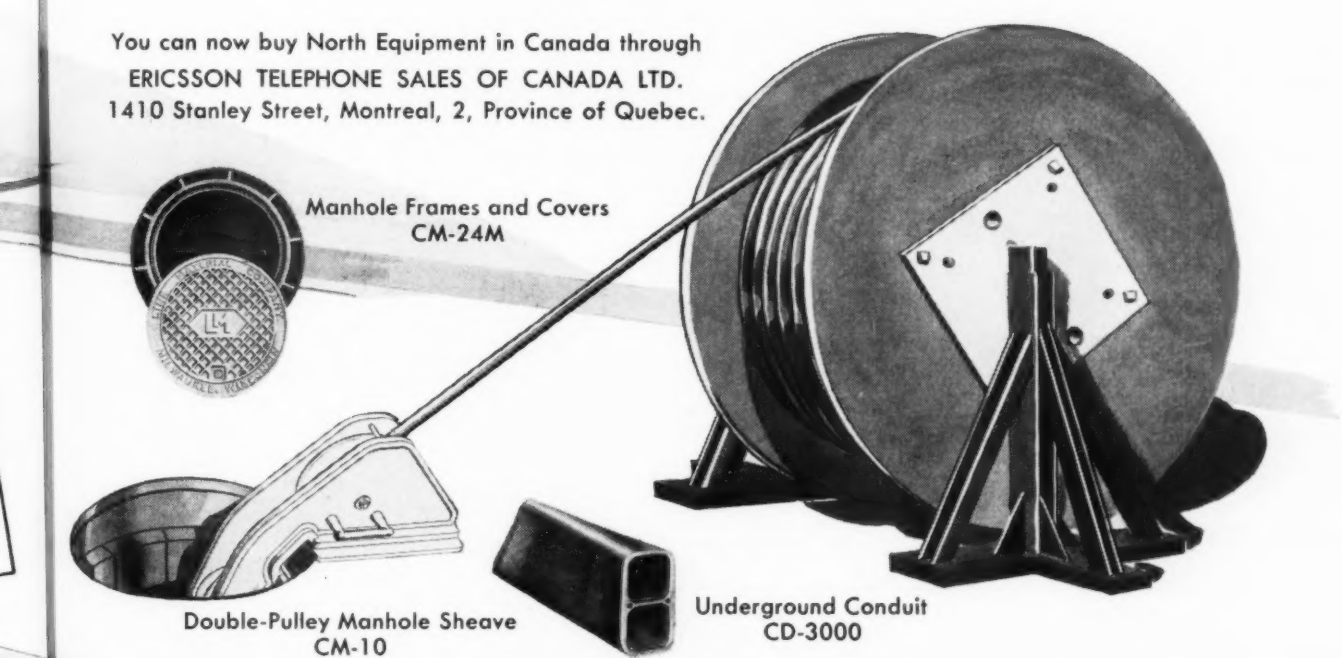
For that important plant construction, uppermost in your mind these days, whether it's overhead or underground, if cable is involved you will find *everything* you need in North's complete national-brand line. Every type of cable, from tailored lengths to reel lots, tools, hardware and accessories for any job are available for prompt delivery.

The fact is that each need you may have, from pole tags to construction or service truck bodies, will be filled to your best satisfaction by ordering from North's complete and convenient catalog, a few typical items from which are illustrated herewith. You can depend upon the best quality, service and price . . .

from NORTH

You can now buy North Equipment in Canada through
ERICSSON TELEPHONE SALES OF CANADA LTD.
1410 Stanley Street, Montreal, 2, Province of Quebec.



Manhole Frames and Covers
CM-24M

Double-Pulley Manhole Sheave
CM-10

Underground Conduit
CD-3000

THE NORTH ELECTRIC MANUFACTURING COMPANY

601 South Market Street • Galion, Ohio

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TO GIVE YOU BETTER BATTERY PERFORMANCE!

By projecting spectrographic film records on the screen of the Densitometer shown above, Gould research engineers can determine almost instantly the composition of battery metal samples and predict their performance under actual service.

Such "screen tests" together with other test procedures make sure that you get batteries with predictable performance and longer service life.

Gould research has taken the guesswork out of battery-making. Take the guesswork out of battery-buying by choosing GOULD!

America's Finest!
GOULD PLANTÉ
The Aristocrat of
Stationary Batteries

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GOULD
Batteries

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TRENTON 7, N. J.

"BETTER BATTERIES THROUGH RESEARCH"

Always Use Gould-National Automobile and Truck Batteries

by FRANCIS X. WELCH WASHINGTON EDITOR

REA's 1954 fiscal report analyzed. New telephone cooperative association will probably have to set up own Washington headquarters. McConnaughey appears before Senate committee on FCC appointment.

THE REPORT of the REA administrator for the year 1954, which ended last June 30, was recently made to the Secretary of the Department of Agriculture. It contains a number of interesting facts about progress of the rural telephone loan program.

Here are several summary conclusions which your correspondent has culled out of the somewhat detailed report (consisting of 23 pages of text and 19 statistical tables), most of which dealt with the electrification phases of REA operations. It might be said in general that it was a clear and well-prepared report, and quite revealing on some aspects not hitherto published; notably, the delinquency of borrowers.

(1) *REA loans increased; applications and expenses were reduced.* REA loans during the year totaled $241,800,000, the highest since 1951. The $74,700,000 in telephone loans is the highest for any year since the telephone program began in October, 1949. Electrification loans for the year reached $167,100,000, surpassing the amount loaned in each of the two preceding fiscal years.

A shortened procedure was adopted for handling loan applications of electric borrowers whose operating records have met criteria of sound business enterprises. This contributed substantially to reducing the backlog of loan applications awaiting processing to the lowest level in recent years, to 118 million dollars at June 30, 1954. Thanks to reorganization improvements and operating economies, the total of administrative funds (REA's operating expenses) obligated in 1954 was $7,303,674, a decrease of 8.8 per cent from 1953.

(2) *Telephone loans were increasing; and so were delinquencies.* In the rural telephone program, the 1954 loan total of $74,700,000 was nearly double the amount loaned the preceding year. Telephone borrowers completed more automatic exchanges, built more miles of new line, and connected more subscribers than during the four previous years combined. By June 30, 1954, REA had made loans to 279 borrowers for the improvement and extension of telephone service in rural areas in 42 states. Some of the telephone borrowers were experiencing difficulty in meeting their debt payments on time primarily because the deferment period on their notes was not long enough to get their systems on the anticipated revenue producing status before they entered the amortization period on their loans. In some instances, deliveries on central office equipment were delayed many months beyond expectations. Specialized assistance was given to delinquent borrowers and steps were taken to relieve the debt service burdens of those borrowers who were not in a position to meet their interest and principal payments as these became due, because of unavoidable delays in construction and delivery of central office equipment.

(3) *REA is improving its telephone industry contacts for better rural service.* REA developed working relationships with the associated Bell companies, the United States Independent Telephone Association, and other segments of the Independent telephone industry in behalf of providing lower cost extended area service contracts and other connecting company agreements. REA also participated in a number of industry activities and technical developments aimed at producing equipment and supplies more adaptable to rural telephone service. Attention was given during the year to changes in requirements and design of rural telephone systems which will reduce the telephone system investment and the rates to rural subscribers. The equity requirements for commercial companies were revised to encourage wider participation in the rural telephone program.

(4) *REA attention is shifting from electric to telephone loan activity.* While the activity of REA employes over-all (including both electric and telephone programs) declined in 1954 as compared with 1953, there was a relative increase in the telephone loan activity and a definite reduction in the electric loan activity. REA man-years employed in the telephone program rose from 320 in 1953 to 392 in 1954. This compared with a decline in man years employed in the electric program from 811 in 1953 to 628 in 1954, and with an over-all decline in REA man years from 1,131 in 1953 to 1,020 in 1954.

The report has quite a bit of interesting detail on technical developments and problems encountered in its rural telephone program. Just for a sample, here is what it has to say about the matter of noise interference:

"Problems of noise on telephone lines as a result of proximity to power lines was a problem affecting several borrowers and techniques are being developed so that the borrowers' personnel will be better able to handle such problems. Problems of line wire abrasion at the insulator were encountered under conditions of high wind and low temperatures. As a result, a complete study of ties unused by industry was undertaken. Modifications in the type of tie wire were made. REA in cooperation with manufacturers worked out a method of wire stringing which reduces service interruptions caused by line wire contacts during high winds accompanied by high temperatures.

"The method used posed problems of vibration fatigue so vibration dampers were standardized for use on lines using the modified wire stringing practices. Working with the manufacturer, a reduction of 30 per cent in the cost of the dampers was achieved. This approach was not the complete answer to this difficult problem and a complete

XUM

change in wire construction practices was proposed to manufacturers by REA. This construction involves the use of insulation on the line conductors so that momentary contacts of the wires will not affect operations. The proposal appears to have large potential advantages in many other aspects of operation and therefore a complete study of this type of construction was under way at the end of the year. . . ."

Another segment of the report deals with the management's activities of telephone loan borrowers. In the case of new telephone cooperatives, it is obvious that appropriate business organizations and effective management must be part of a financing program. This is also true for commercial companies where there have been consolidation or expansion or other types of reorganization. The REA report has this to say about small Independent telephone company problems:

"Historically, a substantial segment of the Independent telephone industry, particularly the smaller companies, has not enjoyed adequate financing nor adequate management. Many of the smaller systems have lived from hand-to-mouth, consuming their capital in lieu of setting aside reserves for depreciation. These companies have not established accounting practices upon which to base effective management. REA loans for the improvement and expansion of such enterprises must necessarily involve the development of accounting practices and management and operating techniques that will assure loan security.

"The provision of initial accounting assistance to borrowers, in establishing accounting practices in keeping with regulatory commission requirements, has been a fundamental part of the (REA) management program. Together with the essential accounting for expenditure of loan funds, this has necessitated a slight expansion in telephone accounting personnel. The importance of maintaining accurate records as a management tool is continually being stressed. During the year REA adopted a policy of requiring all telephone borrowers to engage CPAs for their own general audits."

Loan Delinquency Increasing

On the subject of delinquency, the REA report shows that the number of delinquent borrowers on telephone loans is increasing. This is understandable in view of the fact that the program just started in 1949 and has been expanding in over-all volume very rapidly since that time. However, up to 1952 (fiscal) there were no delinquent borrowers. In 1953 there were 18 (delinquent in principal and interest totaling $67,329); and in 1954 there were 38 telephone borrowers delinquent (total amount of principal and interest were $376,088).

The REA considers a borrower delinquent when principal and interest payments are overdue more than 30 days. As of the end of fiscal 1954, there were 38 borrowers delinquent in principal ($239,431) and 36 borrowers delinquent in interest ($136,657).

Comparing the telephone loan delinquency record with the REA rural electric loan delinquency record, we come upon an interesting fact. The number of rural electric loan delinquents has been *diminishing* ever since 1946 when there were 105, to the low point of 23 at the end of 1954. In other words, there are less rural electric delinquents than rural telephone delinquents (38). Again, as of June 30, 1954, there were 735 rural electric borrowers paying up their obligations *in advance*. (Total amounting to nearly $70,000,000.) There were only three telephone borrowers paying up their obligations to REA in advance.

A good deal of this comparison can be explained in terms of the much larger dollar amounts outstanding and the greater number of borrowers which REA has on its books for rural electric loans, in contrast with the obligations incurred during the more recent rural telephone program. But there is enough of a difference in this delinquency record to indicate that rural telephone loans, by and large, are going to be a lot harder to collect than loans to rural electric borrowers, which have so much more dynamic possibilities of revenue growth, per customer. This is only to be expected, in view of the inherent nature of the two rural services. But it is something that REA is already finding out on the basis of hard statistics.

More on the New NTCA

Following up the discussion last week in this department on the new National Telephone Cooperative Association, it now appears that NTCA will have to arrange for its own Washington headquarters. At a meeting on Feb. 15, at the Traymore Hotel in Atlantic City, the incorporators of the new organization endeavored to work out a plan whereby they could share headquarters with the mother organization, the National Rural Electric Cooperative Association (NRECA).

Clyde T. Ellis, executive manager of the NRECA, seemed to be in favor of this arrangement. NTCA would contribute a small amount in the beginning to care for its share of personnel, publicity and housekeeping expenses. But apparently the executive board of NRECA thought it would be wiser if the new organization established itself independently of NRECA.

The financial organization of NTCA will follow the lines similar to those used by NRECA. Membership (restricted to telephone cooperatives and other non-profit telephone groups) will be assessed at 10 cents per telephone annually, with a minimum of $10 a year and an initiation charge of $25. The entire country has been divided into 10 regions and it is hoped that a complete representation of directors from all regions can be arranged in the near future.

At the present writing, it is not definitely certain that NTCA will even have Washington headquarters, although NRECA's executive manager made a very convincing argument in favor of having both the rural electric and rural telephone cooperative groups located in the Nation's Capital, where they have logical contacts with REA and with congressional committees on REA legislation.

The president of the new organization is Riggs Shepperd of Texas and the vice president is Glen Bergland of Thompson, Iowa.

About a hundred representatives of rural telephone co-ops showed up at the Hotel Traymore meeting. But most of those attending seemed to be uncommitted, as yet, to membership in the new organization. One notable point of discussion was differences of opinion between the co-ops and commercial companies, especially small Independents, over toll charges and compensations—where cooperatives have to connect with Bell System long-distance lines via intermediate lines of Independent companies. That seemed to be the main working objective of the new organization—to bring about a more satisfactory relationship on toll compensation.

FCC Items

Some of the Senate Democrats on the Interstate Commerce Committee set out to give FCC Chairman George C. McConnaughey a hard time on Feb. 23rd, when the question of confirming his nomination for a full term on the

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CRITERION FOR SUCCESS

"It is becoming increasingly evident that the physical sciences have progressed far more rapidly than their political, economic, and social sisters. In fact, it can be questioned whether the average level of moral integrity and social responsibility has changed appreciably in modern times—particularly for the better. We have measured success by what we have, rather than by what we are." — ROBERT C. SWAIN, *vice president, American Cyanamid Co.*

ELECTRICITY

Goes Round and Round

By L. N. MARTIN

THIS WRITER recently made several visits to a small tailor shop for the purpose of having a suit of clothes made. He enjoyed talking to the tailor who was of a nationality that has the reputation for practicing economy almost to the point of stinginess. One day the following conversation took place:

TAILOR: "I understand that you know a lot about electricity."

WRITER: "Well, I have studied electricity quite a bit and I earn my living with electricity."

TAILOR: "Then maybe you can explain to me something that I have long wanted to know."

WRITER: "I will try. What is it you want to know?"

TAILOR: "Here in my shop I have water, I have gas, and I have electricity. The water comes into the shop in a pipe. In *one* pipe. It goes through the meter to the faucet where I use it. The gas comes in through *one* pipe and through the meter to my stove. But the electricity comes in on *two* wires. Why does it take *two* wires?"

WRITER: "That is easy. The electricity comes into the shop over one of the wires, goes through your lights and through the motor on your sewing machine, lighting the lights and turning the motor. It then goes out of the shop on the other wire."

TAILOR: "But where does it go when it leaves the shop?"

WRITER: "It goes back to the powerhouse where it came from."

TAILOR (with a look of alarm): "Does *all* of it go back to the power house?"

WRITER: "Yes. All of it must go back to the powerhouse."

TAILOR: "Do you mean to tell me that after I pay a big price for the electricity the power company gets it all back again?"

The telephone man may have a good laugh at the foregoing story (which, by the way, is true), but after all did not the tailor ask a sensible question from his own viewpoint? And is it not possible that some of our young employes are asking the same question? How is it that a current of electricity comes from a battery or a generator, lights a bulb, turns a motor, or energizes a telephone set and then finds its way back intact to the place it started?

We believe that a good way to explain this to the beginner is to compare it to power transmitted by a belt. Let us picture a machine, say a saw mill, driven by a gasoline engine by means of a leather belt. The belt goes "round and round." It is not used or consumed by the saw. Make a white mark somewhere on the belt and we can watch that spot go from the engine to the saw and back to the engine again and again. Yet the belt transmits power to the saw. Stop the engine. The saw also stops but the belt is still there as good as ever.

Benjamin Franklin, one of the earliest experimenters in electricity, once said (in effect): "Electricity is something that is in *everything* at *all* times, but we have no means of knowing this unless (1) there is too much of it, (2) too little of it, or (3) it is moving."

Franklin was far ahead of his time because the above statement checks exactly with our most modern knowledge of electricity. There was at one time a dispute as to whether electricity was a substance or a vibration. One of the experiments consisted of weighing a wire that carried a current of electricity. It was found that a wire carrying a heavy current weighed no more than when it carried no current. Therefore, if electricity was a substance (matter), it was a weightless material. Franklin was right. The reason a wire not carrying a current weighs just the same as a wire carrying a current is that the electricity is there all the time whether it is moving (current) or not.

Electricity consists of electrons which carry negative charges of electricity or perhaps we should say that electrons *are* negative electricity. Electrons normally circle around the core of an atom. This core is electrically positive. As long as the atoms of a substance have their proper number of electrons that substance is electrically neutral. If there are too many electrons the substance carries a negative charge. If there are too few electrons the substance carries a positive charge. Any of these three conditions may be compared to the belt when the engine is stopped.

An electric current in a true conductor (mostly metals) consists of electrons passing from atom to atom on their way to the positive pole. No electron may make the entire journey but when one atom loses an electron due to the pull of a positive pole, that electron is immediately replaced by an electron from another atom which lies on the negative side of the first atom. Now all electrons are alike, i.e., an electron from a copper atom is the same as one from an atom of iron or an atom of lead. Therefore, at the positive end of the wire an atom of copper may enter an atom of lead in the plate of a battery and at the negative end an electron from a lead atom may be transferred to a copper atom and thus the circuit is completed.

This flow of electrons causes heat, hence will energize a light. It also causes magnetism which will turn a motor or energize a telephone receiver.

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Crow Creek Hill master receiving antennas and equipment building. AT&T transcontinental TV relay station in background.

COMMUNITY TELEVISION System SERVES CASPER, WYOMING

*by T. G. Morrissey**

TELEVISION is an American household commodity which has grown to be almost as indispensable as the family refrigerator. If the electric power fails during one of those cold winter nights when the family is all settled down for their evening fare of TV entertainment, there are many disappointing moments until the power is restored and the picture returns.

This attraction to the wonders of the video screen is almost without limit to the people of Casper, Wyo., because of the geographical isolation of the Equality State's largest city. The nearest metropolis is Denver, over 300 miles by car. Cheyenne, the state capital, lies nearly 200 miles southward across vast expanses of sage-covered rangeland and pine-studded mountains.

Until recently, folks in Casper have had to be content for their entertainment with the movies, the radio, a road show now and then, or a night club with seldom known entertainers. But now they have television, with the same big time network programs as Hollywood and New York are seeing.

Because there are no TV stations near enough to Casper to be picked up with even the best of TV antennas, they receive theirs from a cable system. This system, the first of its kind anywhere, brings in TV programs from all four of the Denver stations—300 miles from Casper. To cover this great distance, intervening booster stations relay the signal from point to point over the mountains and plains.

Onan electric generators are on the job at the booster stations to supply emergency power when the rural power lines experience one of their not-infrequent interruptions from lightning and snow storms.

For those readers who might be interested in more details, this is how the cable system was built and operates.

It all begins on a 9,000-foot mountain, called Crow Creek Hill, located a few miles from Laramie, Wyo., which is a little over 100 miles from the top of the nation where the Continental Divide crosses the state. This is at the southern tip of the Laramie Range of mountains. The relay system terminates beyond the northern slopes of the range around which flows the North Platte River through Casper, a city rich in the historic growth of the western half of the nation.

It was through Casper and along the banks of the North Platte River that the wagon trains and the pack animals of the early settlers followed the Oregon Trail to people the small villages of the Northwest Territory. Here, too, paused the gold-thirsty prospectors hitting the trail to Alaska. Sturdy Mormon pioneers built a ferry across the river at this point on their historic trek which ended in founding the beautiful community which has become Salt Lake City.

There are modern pioneers populating Casper today who are seeking out the underground pools of black gold that lay hidden beneath the rangeland of the western plains. A small handful of these rugged, enterprising, individuals became determined that the people of Casper should have live network television service. Their investigations proved that a local TV station would not be economically sound in a community of 30,000 people, and the cost of connecting to the TV networks, several hundred miles away, seemed impractical.

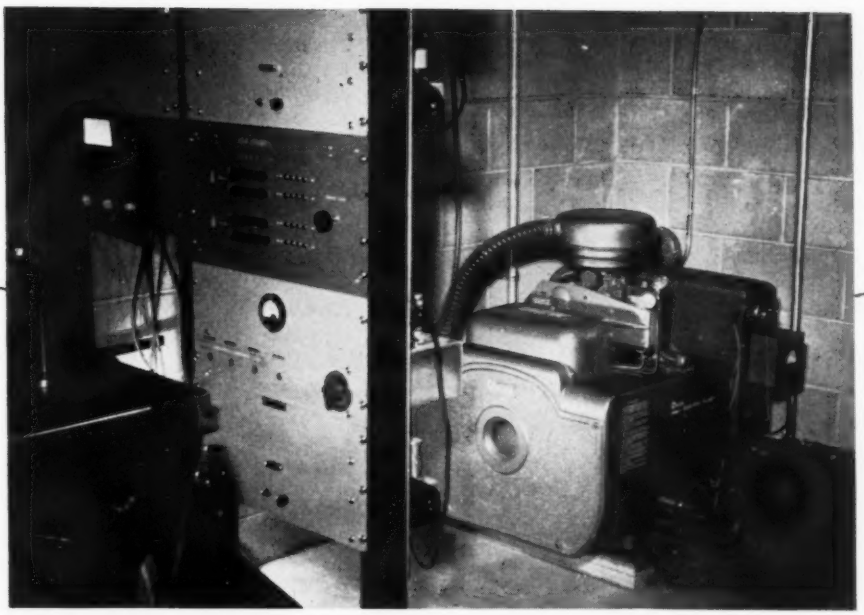
But a way appeared possible through the establishing of a cable system which is frequently called a Community Television Antenna System. By such a system, the TV signals are picked up at a vantage point in the fringe area of a metropolitan city. Then these are relayed by micro-wave radio towers from the point of pick-up to the city to be served, and finally are distributed into the individual homes through a cable-and-booster-amplifier network, much in the manner of electrical power service distribution.

In the Casper system, the TV signals from the four Denver stations are picked up at a master receiving station on top of Crow Creek Hill. From there they are boosted northward, via five radio relay towers located on hills about 40 miles apart, to finally arrive in Casper where they are fed into the city television cable distribution system. The individual homes, clubs, and business establishments receive their service by direct connection to the cable in the street or alley.

This is a half million dollar project. How is it paid for? A company, named the Community TV Systems of Wyoming, was formed. Its stockholders underwrote the funds to construct and operate the system. Persons desiring TV service pay this company a connecting charge which goes toward re-

(Please turn to page 44)

*Mr. Morrissey is a television consulting engineer with headquarters in Denver, Colo.



Onan Model 10CW, 10,000-watt emergency generator installed in Crow Creek Hill Building.

Crow Creek Hill master receiving antennas and equipment building. Dish mounted horizontally at base of tower beams radio wave to slanting reflector sheet near top of tower which sends it over horizon to next relay tower.

Master receiver equipment inside Crow Creek Hill Building.

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THE PLANT MAN'S Notebook

by Ray Blain, Technical Editor

FREQUENT COMMENT is made in the daily press as to how the telephone will be used in the event of any national emergency. We even read a lengthy account recently in which it was stated that a certain National Guard outfit would be called immediately by telephone and ordered to report, in the event that this particular city was ever visited by enemy bombers.

Stories of this type may make interesting reading, but we seriously doubt whether their authors fully understand the subject or the communications business. Drop a smoke bomb with a loud bang on any town or city and we venture an opinion that within minutes the average telephone system will be so jammed that very few calls will go through to completion.

What panic of this nature will do was demonstrated in a mild form when we were advised that hurricane "Hazel" would pass through the Washington, D. C., area. At the time, the writer was at his office where telephone service is furnished on a large dial PBX system. It seems that everyone tried to call home at one time. A wait of 10 minutes or more was required to obtain dial tone over a central office trunk. Then, even a longer wait was necessary to receive dial tone on the main exchange. Actually, very few calls got through from our office.

When we went home soon after we received the storm warning, dial tone could not be obtained over our residence telephone. After a wait of several minutes we gave up the idea of using the telephone for that day.

It is believed that the only means of controlling this condition is to provide some type of a disaster plan. This possibly could be accomplished by an arrangement to open the battery to the line relays on certain telephones in the event of an emergency. Moreover, only certain designated important telephones could originate calls during the time that the emergency was in effect. Everyone would be able to receive calls, however.

This may not be the proper answer, but certainly the question of how available commercial telephone service can be allocated and controlled in the event of any national emergency merits the constructive thoughts of the communications industry of our country.

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On this page in the Nov. 6, 1954, issue, we raised the question as to the necessity of windows in a modern telephone exchange building and requested comments from our readers.

One comment was recently received from D. E. McGregor, president of the Nebraska Central Telephone Co., Gibbon. Mr. McGregor has the following to say on the subject: "After building one dial exchange building with a large picture window for the effect and one without windows in the switch room, I believe that the windowless building is to be preferred from a safety standpoint. Under safety, I include dust and temperature changes which can better be controlled where there are no windows.

"In our last building, the switch room was partitioned from a small workroom in which was located a wall type main frame so that it is not necessary to enter the switch room when testing lines and running jumpers. A tile partition and a steel door reduces the fire hazard. Then a steel door and a small steel framed window in the workroom makes the entire building practically fireproof."

In another letter from A. C. Coates, superintendent of communications for the Iraq Petroleum Co., Ltd., Tripoli, Lebanon, the following comments are pertinent: "You are quite right about windows in a modern telephone exchange. Windows have been omitted in recently constructed air conditioned communications buildings in Iraq. This comes by a process of natural evolution, the first step being to close the windows, the second to seal them, the third to fit double sealed windows, and so on. In a hot, dusty country, windows are better left out, but to have panels—or preferably a wall—of glass bricks is a suggestion worth considering."

• • •

The increase in outdoor type public telephone booths is quite noticeable as one travels about the country. It is likewise a fact that these public telephones are more numerous in some localities than in others.

This may be due to the fact that residents of certain areas make more use of public telephones than in others. Then, too, it might be that this type of business must be developed in any area and that some operating companies have more initiative than others.

However, it would appear that public telephone business can be increased in any area if it is promoted properly.

In discussing public telephones along a New Jersey highway recently with a friend, a man remarked: "Since these roadside booths have been installed, whenever I'm delayed out on the job, I stop and call my wife to advise her that I will be late for dinner. Before these booths became so convenient, I just drove on and ate a cold dinner."

• • •

We have always been firm in our belief that as telephone service increases in value throughout the country, we will have fewer party lines. Party line service does not prove adequate to anyone who must use the telephone frequently on business or pleasure. Our conviction appears to be justified according to the following report published recently in the *Ohio Bell Magazine:*

"When our plant crews tally up their year-end results they will find that they have worked more than 106,000 regrade orders throughout Ohio during the past 12 months.

"A good bit of that work helped wipe out most of more than 37,000 regrade orders held over from the previous year plus a goodly share of approximately 86,000 new regrade requests that developed this year."

In an article titled "Maintaining an Efficient Automobile Fleet," by Frederick K. Glynn, in the autumn issue of *Bell Telephone Magazine*, the following interesting comparison is made of the telephone trucks of yesterday and today:

"In 1924, in Model T days of 30 years ago, an installer drove his small truck about 8,300 miles in a year, while today he drives about 7,600 miles. The Model T was good for 40 miles per hour—down hill—while today's small truck could go 70 and take most hills in stride.

"The hours spent in driving then and now probably range from 375 to 425 in a year. Speed is probably no different because then, as now, the Bell System was super-conscious of safety. Today, the streets and roads where installers work are so congested with traffic that less than Model T speeds are the fastest safely possible."

Having been a Model T jockey in the old days, the writer can appreciate this statement. I often wonder now how we ever negotiated as we did, the bad roads of yesterday with those little and low-powered cars.

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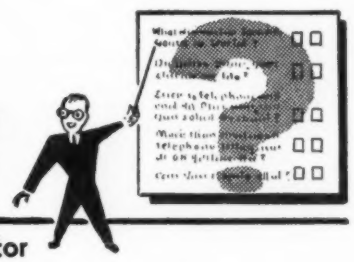
The frequent filling of drafting pens from inkwells is unnecessary with a new type of ruling pen which, it is claimed, contains a cartridge that holds enough ink for 55,000 inches of ruled lines. By merely pressing the cap, a concealed feed-tube releases the exact amount of India ink required to fill the nib. Replaceable ink cartridges are easily inserted. The nibs are stainless steel and precision honed.

PLANT MAN'S QUIZ



by RAY BLAIN, Technical Editor

Q. We have a 10-year old storage battery that is giving good service and appears to be satisfactory in every way. We are worried though that this battery, because of its age, may fail at a critical time and leave us without service. Can we make a test that will determine its condition?

A. It is suggested that you cut off your charging machine and determine the capacity of your battery. Keep an accurate record of the ampere-hour discharge until the voltage drops to the permissible point. If it will carry your exchange over a period of time equal to the length of the average failure of the commercial power, you have nothing to worry about. Even a shorter period of time may prove satisfactory if you have an emergency gas engine-driven charging set.

It is our opinion that your battery is still in good condition if it has been properly maintained during the years of its service life and has not been excessively overcharged.

We inspected a 13-year old lead acid storage battery in a telephone exchange recently and found it to be in excellent condition. There was very little sediment in the bottom of any of the cells. There is every probability that this battery is good for another 10 years or more of service. It is maintained on a float charge and water addition is necessary only about twice each year.

V V

Q. We would like to know whether it will be possible to reduce the resistance of a ground connection by connecting several ground rods in parallel?

A. Yes, providing they are properly spaced. The resistance of a ground is always greatest within a radius of about a foot of the rod. If several rods are driven within this radius and connected together, there will be very little reduction of the ground resistance over a single rod.

If, however, the rods are separated by a distance of about 6 feet and connected together, conductivity will be improved in direct proportion to their number.

If a single rod has a resistance of 60 ohms, two rods in parallel will have 30 ohms, and four, 15 ohms, etc.

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Q. Will you please advise us where we may obtain details on a wrist-watch type radio receiver?

A. Details of an experimental receiver of this type, developed by the U. S. Army Signal Corps, are now available. This receiver utilizes a printed circuit and three transistors. It is claimed that it will give clear reception at distances up to 45 miles.

Available details include a schematic diagram of the receiver and may be obtained from the office of Technical Services, U. S. Commerce Department, Washington 25, D. C.

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Q. We are frequently advised in maintenance practices that drop wire should be properly sagged; yet we have difficulty in obtaining the necessary information as to just what is the proper sag in drop wire. While it is true that where clearance is no problem, considerable sags are not objectionable, in many cases and particularly with modern residential construction, clearance does become a problem and oftentimes the very minimum sag is desirable from an installation point of view. Nevertheless, it must be admitted that at times it might be desirable to place pole extension fixtures or even replace the pole with a taller one if necessary to obtain both the proper clearance and sag. Can you give us any definite information on this subject?

A. We must admit that proper sag in drop wire is frequently a neglected subject in the telephone plant. Moreover, information on this subject has not in the past always received the consideration that bare wire has. The Copperweld Steel Co. suggests the following normal sag for its No. 18 AWG drop wire:

Span Length Feet	*Stringing in Heavy Loading District*	
	Sag, Inches	*Tension, Pounds*
50	6	30
75	12	30
100	21	30
125	34	30
150	48	30
175	84*	25
200	132*	20

Span Length Feet	*Stringing in Medium and Light Loading Districts*	
	Sag, Inches	*Tension, Pounds*
50	6	30
75	12	30
100	21	30
125	34	30
150	48	30
175	66*	30
200	84*	30
225	108*	30
250	132*	30

*Spans over 150 feet are generally avoided.

In special cases where smaller sags must be used to provide the clearances required by the code, the minimum sags should in no case be less than 60 per cent of those shown in the table.

These data are computed for reinforced type drop wire. For non-reinforced and Figure-8 type wires, the tensions will be slightly lower because of slightly less weight.

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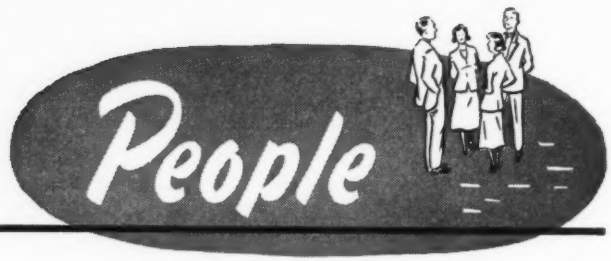
Working With People



By GILBERT R. BRACKETT

PART VII

WE REPEAT—we learn about people by observing and analyzing their work, talking with them and exchanging opinions. The resulting success of our discussions depend upon how carefully we supervise our people in their day-to-day job and how well we know and understand them.

Our day-to-day contacts provide us with an excellent opportunity to develop friendly relations. We learn a great deal about our people and what they are accomplishing. They provide means of transmitting to them information about the company, the job, and objectives they should work toward, etc.

Short contacts or discussions are particularly productive when properly handled. They will generally bring problems or conditions to light before they reach too serious proportions. But when we enter a discussion, short or long, we should keep constantly in mind that we are talking *with* our people and not *to* them.

We are continuously having discussions of one kind or another and there are some things we should remember as we talk with our people—

We should use an informal, friendly greeting.

We should show a genuine interest in the job, in the person and the subject under discussion. Our interest must be sincere and not have any suggestion of prying or asking unnecessary questions just to stimulate interest.

Informal discussions should be held at every opportunity, each day if possible. Our people will then get the habit of coming to us for advice and confide in us as friends. Discussions help to build up good relationship with our people.

While you and your co-worker are two different people, you want to see eye to eye. Sure, you can have a meeting of minds, which is not difficult to do, but is that all you want? Of course not—you want a meeting of hearts as well.

If your TV set is not tuned in properly you get a fringe picture and that is just as true of people. The better we open our hearts to one another the better our relationship will be.

How can we do this?

We can be friendly and considerate.

We can develop a common interest. There's no doubt but that you and your people are interested in doing the work that is assigned to you in the right way, so we'll avoid disagreement at the start.

We must not argue or condemn.

We must never, never gossip.

We must show respect and understanding for the other fellow's view.

The day-by-day relationship is truly very important and if we do the things suggested, day in and day out, we will run into little difficulty in seeing eye to eye and opening our hearts to one another.

The co-worker we are talking to should be the central figure at all times in any discussion. There are some things we can do that will help the person feel that he is the central figure, an important part of the discussion team. We can—

Be a good listener.

Be genuinely interested.

Encourage him to speak freely.

Make him feel we are glad to help him.

Treat what he says as important.

Keep what he says in the strictest confidence.

Talking will not help us understand the other person's problem—we gain our knowledge through listening. So many times we begin a discussion by giving our point of view instead of trying to understand theirs. If our attitude is one of honestly wanting to listen and understand, understanding and listening will usually follow.

We should use questions sparingly. Keep in mind that when the discussion becomes a "quiz" program, we very often won't get the whole story. Try to avoid questions that will invite a "yes" or "no" answer. Such questions very often stop a person from talking when you want him to talk.

Certainly, we should give advice on technical or job problems when the person needs help. But, before we give advice, we should know the complete story, the person's point of view if we are to help him, assist him to make his own decisions and find the right answers.

We should weigh very carefully the disposition of any information given us in confidence. When should we pass it on to our supervisor? When should we keep it to ourselves? If it is something of vital interest to the business, we should use every effort to get the person's permission to pass it along. If you can't get this permission, keep it to yourself!

In your position as adviser you are apt to give advice too freely on personal matters. Be extremely careful. Remember, our job is to help the person to solve the on-the-job problems.

Much value comes from all the discussions we have with our people:

(1) They help the person develop an understanding of his weakness and strength.

(2) Assures him he is not being overlooked and we are interested in his welfare.

(3) They help the person to overcome his frailties and to learn about his problems before they become too serious.

(4) It gives us the opportunity to convey the impression that we are sincerely trying to help the person and not finding fault.

(5) We must not over-emphasize weaknesses—it could cause the person to lose confidence in himself.

(6) It gives us the opportunity to work out with him ways of improving and to encourage him to find the solutions to his problems and to improve his work. Such solutions will then become his own—not ours.

(7) They will leave the person with a feeling of confidence that he can himself overcome his weaknesses—if we tell him about his good qualities and assure him we are confident he can improve.

(8) When we close the discussion, the person should know clearly where he stands and what he should do next. He should understand that he will be given all the help he may need and that he may feel free to call upon us for assistance whenever it is necessary.

To Be a Good Leader

Leadership is defined as "The ability to get people to work cooperatively and efficiently toward a desired objective."

Let's look at leadership. What is it? Why is it important? Now let's ask ourselves a couple of questions—questions about the job.

What is the main object of our business?

What are we in business to accomplish?

Really the answers are simple. "We must see that the public receives the best product we are capable of building, at the least cost, consistent with good working conditions and wages for employes and a reasonable return on the investment in the business." Isn't that true?

We can accomplish these objectives only through good and adequate equipment, reasonable rates, and good public relations.

These three things are important, very important, but even more important are our people, because through our people we accomplish everything.

If we are to get the job done we need conscientious people, people who have a will to do a good job. We need competent people. We need cooperative people, people who will work together as a team to accomplish our objective.

Who is responsible for developing people so they will have these qualities? We supervisors are and we develop our people only through good leadership. First, let's make sure we understand the definition of leadership as applied to our job.

When we became supervisors, a certain authority was given us. Good leadership depends upon using that authority in such a way that we earn the respect and good-will of the people we supervise. People want and are looking for guidance, no matter how far up the ladder of success they have climbed, and they will react favorably to good leadership.

Our leadership is measured by our success in creating a desire in our people to do a good job and to avoid creating a feeling of discontent and confusion. Knowing and understanding people is the basis of good leadership.

We have spoken of the difference between doing the job ourselves and assisting others to do it. We said there were three roads open to us:

The road of dictatorship.
The road of least resistance.
The road of good leadership.

You, as a leader, have these three alternatives to choose from.

The first one is the "bossy" method. We're the boss. We have the whip. If the job isn't done right we'll be held responsible. Someone else we know is bossy and they have a fair amount of success, so we'll be bossy. Some supervisors think the only way they can get the job done is to sit on the throne and dictate. They just don't know any other way. What an unhappy life they must live.

It seems to be the easy way. It doesn't require much skill in meeting problems—just give orders and demand results. A leader might sometimes in this way be effective with people who are completely dependent on the leader. But, it is far from the best way, even though some people accept it.

The second road is the attitude of "Let things take care of themselves," or the "Let-them-do-as-they-please" tack. This method generally stems from a dislike of responsibility, a lack of confidence, criticism or disappointment. There are some people who can't even decide what they want to eat. You've met them—they wait until someone else orders and then they say, "I'll take the same."

This is the simplest of all methods. It requires little if anything from the leader. And strange though it may sound, there are times when this method can be used. One could sit back to determine if the other person will take any responsibility. We might force someone to make a decision or perhaps we might want the person to work out his own solution to a difficulty in order that he may save "face."

How about the third way—the "we" or "democratic" method? The method by which the leader builds up responsibility in his people.

The democratic way is not an easy approach—it is a most difficult one. It requires plenty of understanding and steadfast patience.

"I DON'T MIND BEING LOYAL TO THE COMPANY. BUT I THINK THIS IS CARRYING IT A BIT TOO FAR."

We supervisors would all do well to concentrate on developing more use of the "we" in our leadership. It results in developing the qualities you want in your people. It offers many more possibilities of meeting the changed conditions that we are faced with today. It is the best way to develop in people the will to do the job. Unless the urge comes from within, the job will not be a good one.

In your work you know there are occasions where giving an order is the best thing to do. There are other times when things will take care of themselves, but the "we" method is the one we should use most frequently.

The key to "democratic" leadership is a sense of participation or sharing in common with our people. This sense of participation will be yours when—

When you are brought in on things.

When you are consulted.

When you know the objectives (what you are trying to do) and the reason why they are important.

When you share in deciding how things shall be done.

When you feel that you are considered as an important part of an activity in which you are participating. It is not enough to know why—you must be a part of it.

The good leader attempts to get results by creating a desire for instructions, to get the person to want to do a good job. Your people want to feel that they are wanted, that they are an essential part of their firm's organization. Give it any name you want to—it's merely a sense of importance.

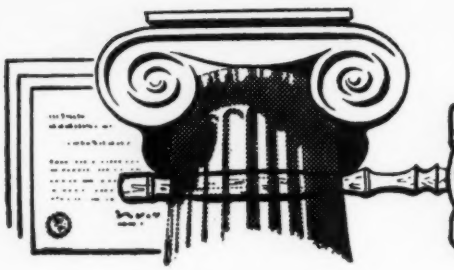
What is it that forces a man through miles of driving snow, sleet, fire or flood to get a repair job done? What is it that drives an operator through all sorts of adversities to get to the office when she is needed? Isn't it simply the feeling of being necessary?

Should there be any reason for one of your people to feel that he isn't needed? Most emphatically not! Each one of your people is a cog that makes your job run smoothly. Take just one out and you have the groaning of an overloaded, laboring organization. It is your job to convince each one of your people that *he is important.*

Your people are sensitive to your opinions. Fairness, helpfulness, sympathetic understanding and mutual confidence are all needed for the successful administration of supervision. Men and women respond to these things, and most of them will do and will want to do what is expected of them. People are very much what other people believe them to be—espe-

(Please turn to page 43)

XUM



Courts and Commissions

NE T&T Seeks to Rescind Municipal Service Discount

Massachusetts Supreme Court on Feb. 9 took under advisement the appeal of the New England Telephone & Telegraph Co. from a superior court decision granting the city of Brockton a 75 per cent discount for municipal telephone service.

Should the supreme court reverse the decision of the lower court, the city would have to reimburse the company approximately $100,000 plus interest and costs from April, 1949 to April, 1954. Such a decision would mean the city's telephone bill would approximate $26,000 yearly instead of about $6000 which the city has been paying since 1895.

In 1949 the telephone company sought to rescind the discount granted cities and Brockton was the only community to object.

The company then instituted proceedings to enforce full payment for the service but Superior Court Judge Pecce found in favor of the city, the company's appeal following.

The city contends that a 50-year-old agreement granting the company use of sidewalks and streets is binding and a similar agreement on service costs dating back to 1895 is binding on the company.

V V

South Carolina Independent Gets $60,148 Annual Rate Raise

The South Carolina Public Service Commission authorized the Central Telephone Co., Inc. on Feb. 7 to increase rates to 6,577 customers in the eastern panhandle by $60,148 a year, about $32,000 short of the amount requested by the company. (TELEPHONY, Sept. 4, p. 31).

However, the commission specified that increased rates were not to be placed in effect at Moorefield, Paw Paw and Capon Bridge until an automatic system is put into operation. The other exchanges already have automatic systems installed.

The company, which claimed its expenses have increased 229 per cent over its 1945 expenditures, sought a return on its investment of 6.46 per cent, or an increase of $92,319 a year. The commission reduced it to a return of 6.25 per cent. Central calculated its current return at 3.13 per cent.

V V

General of the Southeast Requests Rate Adjustments

West Virginia Public Service Commission approval for increasing telephone rates is being sought by the General Telephone Co. of the Southeast, Bluefield, W. Va., J. E. Johnson, commercial manager, said recently.

The company also has made application for approval of the rate change to the Virginia Corporation Commission for exchanges served in that state.

Mr. Johnson said the company's earnings have declined to the point that an increase in rates is needed to maintain the "financial stability of the company. . . ."

General's cost of doing business has continued to rise with the growth of the company, the manager said. He explained that the organization has grown from a 2.3-million-dollar company in 1946 to its present net investment of 6.5 million.

Of this amount, Mr. Johnson continued, 1.2 million was spent in 1954. The 1955 expansion program probably will include greater expenditures, he said.

"This expansion and improvement program necessitates attracting outside capital," Mr. Johnson went on. He explained in a local interview that the telephone company unlike most other businesses, cannot accumulate reserves to expand telephone service.

V V

Ohio Company Asks OK of Bonds To Finance Construction

Lorain Telephone Co. has asked the Ohio Public Utilities Commission for permission to issue one million dollars worth of bonds, it was reported on Feb. 12.

The money, company officials said, will be used for new construction, mainly in outlying areas. The new construction will include cables, telephones and central office equipment.

Minnesota Commission Approves Purchase of Three Companies

The following three sales of Independent telephone companies have been approved by the Minnesota Railroad & Warehouse Commission:

The Baxter Cooperative Telephone Co., Brainerd (a service station company with approximately 81 subscribers) to Northwestern Bell Telephone Co. (on Feb. 21).

The Nelson Telephone Exchange, Clitherall, serving approximately 25 stations, sold to Clitherall Mutual Telephone Co. (on Feb. 21).

South Ramsey Telephone Co., Anoka (a service station company with approximately 28 subscribers) to Northwestern Bell Telephone Co.

V V

Kansas Man Claims Injuries From Sagging Power Line; Sues

A $72,000 damage suit against Western Light & Telephone Co., Kansas City, Mo., was filed in district court in Great Bend, Kan., recently, just two days before the statute of limitations would have precluded suit.

N. I. Tedder, of Hutchinson, Kan., seeks damages for injuries he alleges he suffered in a near-electrocution on Jan. 30, 1953.

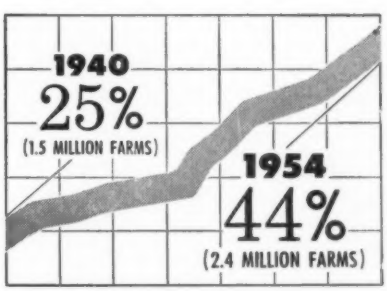
According to the petition, Mr. Tedder was employed by a company in Hutchinson, at the time of the accident. He was digging post holes alongside the highway. His claim is that a sagging WL&T power line either touched his post hole digger, or came

(Please turn to page 30)

On the page at the right is the 11th United States Independent Telephone Association advertisement in its national campaign to publicize the Independent telephone industry. The ad was to have run in the Mar. 7 issue of *Time*, the Mar. 11 issue of *U. S. News & World Report* and the March issue of *Better Farming*.

Boss of a growing business

Farms today are bigger, more mechanized—
and more dependent on telephone service!



U. S. FARMS WITH TELEPHONES
According to U. S. Dept. of Agriculture

The modern farmer knows what every businessman knows—the value of telephone service. That's why farms with telephones are up *59% and nearly a million in number* since 1940—and still climbing! Across the sweep of her rolling farmlands, America's 5,000 Independent Telephone Companies have furnished dependable rural service for generations. Now, moving ahead together...a single dynamic industry...these Independents are modernizing, improving, expanding their facilities wherever there is need. Helping customers and communities grow...by growing with them.

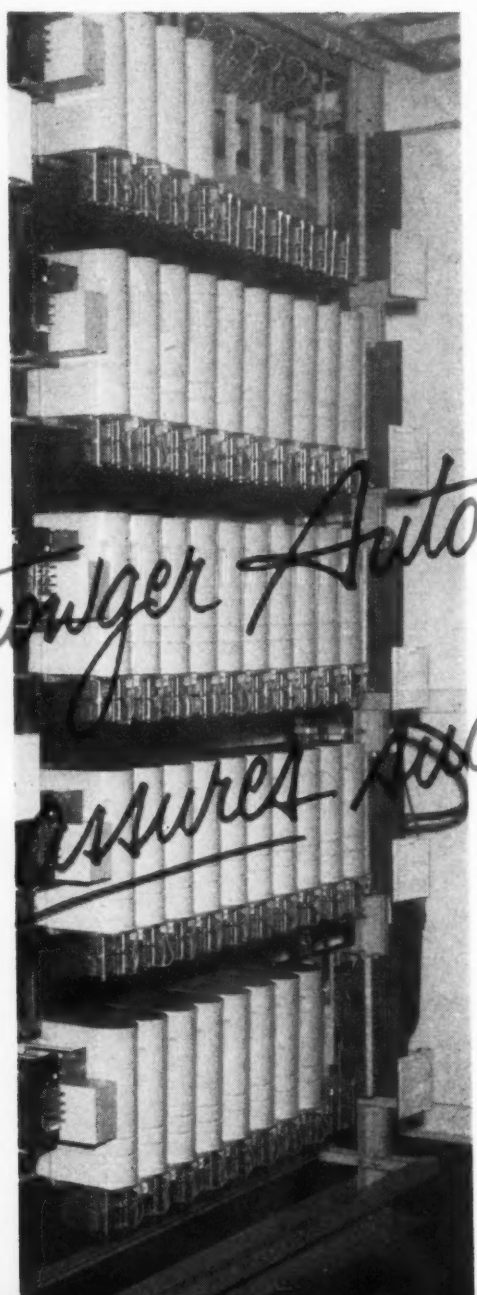
USITA

United States Independent Telephone Association

Pennsylvania Building : Washington, D. C.

Successful telephone men take no unnecessary chances. In selecting switching equipment, for example, they know there no need to gamble; that's why they buy Strowger Automatic. They buy it on its record—they know what it will do!

Why Gam



Strowger Automatic assures success!

mble?

No unfounded claims, no vague euphemisms are necessary to sell Strowger. The record of many years shows irrefutably, conclusively that:

Strowger Automatic Maintenance Costs Less. Circuits are simple — permit fast routining by less costly, semi-skilled men. Wearing parts are few and are quickly, easily and inexpensively replaced. Strowger Automatic is expertly made — stays trouble-free, needs little care.

Strowger Automatic is Unequalled for Dependability. Now and then an old Strowger exchange is replaced with more modern Strowger Automatic equipment containing the latest circuits. But no Strowger Automatic exchange has ever worn out!

Strowger Automatic is Unequalled for Flexibility. Each switch is complete with its own control relays. All switches can be easily jacked in or pulled out as needed. Result: simplicity and speed in changing trunking and modifying traffic patterns.

Strowger Automatic Grows Economically. You merely add switches, shelves, or complete frames — the initial equipment and existing service are not disturbed. You meet every growth requirement economically.

Strowger Automatic provides the most Modern Toll Service. Intertoll connectors, automatic toll ticketing, digit-absorbing switches — every facility for both operator and subscriber toll dialing — have been developed by Automatic. And all have been *proved* dependable in the field.

Don't gamble your company's money and its future, choose Strowger Automatic for *assured* success. Start by arranging a helpful engineering conference with us. *Address: Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or, call HAymarket 1-4300.*

AUTOMATIC AE SC ELECTRIC

close enough to send 10,200 volts into his hands, through his body and through his feet. The digger was 14½ feet high, and Tedder's petition claims the power lines were sagging to 13 feet.

Mr. Tedder alleges that: he was knocked unconscious, with four of his teeth knocked out when his head was thrown back; he suffered third degree burns; sustained shock to the mental and nervous system that has left him mentally depressed and unstable; his right hand is without strength; his hearing ability is reduced 18 per cent and scars on his feet break open under the pressure of walking.

The petition states that doctors have told Mr. Tedder his condition will never improve. Damages are based on loss of earning capacity, pain, suffering and humiliation, plus hospital and doctor bills. Total is $72,192.50.

The petition alleges that the accident was the direct result of negligence and carelessness.

V V

Number Similarity Suit Settled Out of Court

A suit over a subscriber's inconvenience caused by telephone number similarity—Fred H. Halsey v. General Telephone Co. of the Southwest—has been settled out of court (TELEPHONY, July 10, 1954, p. 30).

The suit, originally reported from Texarkana, Ark., arose over the similarity between Halsey's office number (2-8211) and the State National Bank's "time of day" number (22-8211). Halsey, an architect, sued for an injunction against the General company and asked statutory damages, claiming that he had received as many as 83 telephone calls in a single day requesting the time.

Don S. Holdridge, general attorney for General of the Southwest, stated in a letter to TELEPHONY:

"The possibility of settlement out-of-court mentioned in your report became a reality and the lawsuit was dismissed by the plaintiff (Halsey) at plaintiff's costs.

"The settlement itself involved no payment by the defendant telephone company, and consisted of changing the plaintiff's telephone number and agreeing to give him intercept service for a period of one year.

"This is the same settlement that was offered to the plaintiff by the telephone company on the day he first complained about the number similarity."

V V

North Carolina Company to Sell $500,000 Bonds for Expansion

Durham Telephone Co. was authorized by the North Carolina Utilities Commission on Feb. 22 to sell $500,000 worth of 3.75 per cent, 25-year first mortgage bonds (TELEPHONY, Feb. 26, p. 43).

Proceeds from the bonds, which will be sold to the Penn Mutual Life Insurance Co., will go to cover the cost of expansions and improvements in the company's system.

One of the results of decentralization of industry is demand for private branch exchange service in many exchanges served by independents which till now have had little or no call for such service. J. H. Wright, vice president of the Georgia Continental Telephone Co., reported that company recently installed its first PBX in Monroe, Ga., its headquarters exchange. The installation consisted of a three-trunk, 10-station cordless PBX board serving the new plant of Charles W. Henson Mfg. Co. The photo, taken after the board was in place, shows (left) CHARLES W. HENSON, president; C. W. HENSON, JR., manager, and MRS. DOROTHY WATTS, PBX operator and receptionist.

V V

Company Asks Virginia Approval To Sell $4,700,000 Bonds

The Virginia Corporation Commission on Feb. 18 authorized the Inter-Mountain Telephone Co., Bristol, Tenn., to issue $4,700,000 of first mortgage sinking fund bonds to pay off outstanding bonds, and finance plant and equipment expansions and improvements.

The commission stipulated that the bonds be issued by Aug. 15. They will carry an interest rate of 3¼ per cent, and will mature Feb. 1, 1980.

V V

Kansas Man Purchases Two Exchanges

Operation of the Lucas and Sylvan Grove, Kan., exchanges is now in the hands of Paul Grauer, owner of the Wilson (Kan.) Telephone Co., it was reported recently.

Mr. Grauer, who took over the Wilson system in 1943, said the new effective date of operation at Lucas and Sylvan Grove was Feb. 1. Ray Atchison sold the Lucas exchange and Paul Cross disposed of that at Sylvan Grove, the Cross Telephone Co.

Mr. Grauer said his two new exchanges have a total of 650 customers. There are 600 telephones in Wilson.

Wilson will be headquarters for all three towns.

Improvements of the Wilson system made since Mr. Grauer took over include a new building prior to conversion to an automatic system.

Mr. Grauer reportedly hopes to convert the Lucas system to automatic in about two years and the Sylvan Grove in five years.

V V

Arizona Independent Requests Increase in Revenue

The Arizona Corporation Commission on Feb. 10 docketed for hearing on Feb. 21 a request by the Ray Electric & Telephone Co., Hayden, for permission to increase rates.

The proposed increase would amount to $5,852.75 per year in added revenue.

V V

"There is a large number of people who by their actions aid the cause of socialism, although they are frequently unaware of the direction they are traveling. Most are sincere people. If the choice was direct they would be against state socialism but the things they advocate would, if put together, make it a genuine reality."—Red Bend (Ill.) PILGRIM.

Emergency Party Line Use Bills Approved, Proposed

The Massachusetts Legislature voted to make it a criminal offense for a subscriber on a telephone party line to refuse to yield the line to another person for an emergency call, it was reported on Feb. 14.

The bill would make it punishable by fines of $50 to $500 for a party line user to refuse to yield for a call for police, firemen or a doctor. The measure was to be sent to Governor Herter for his signature.

Other states in which legislation of this type has been proposed are Kansas and Rhode Island.

A bill introduced in the Kansas Legislature on Feb. 21 would make it a misdemeanor for anyone to refuse to yield a party line if someone else on the line had to call the fire or police departments, a doctor, or make any other type of emergency call.

Sponsored by Representatives Jack Scott and G. H. Newcom, the measure would also make it a misdemeanor for anyone falsely claiming a party line for an emergency call when no emergency existed.

The Rhode Island House on Feb. 17 received a measure providing for fines up to $300 and jail sentences as high as 90 days, or both, if a party line talker refuses to give up the use of the telephone to make way for an emergency call.

But, the bill goes on, if a person dreamed up an emergency just to get a party line, then there would be another fine. But this one wouldn't be quite as stiff—fines up to $20 or jail up to three months.

The bill was introduced by Rep. Arthur R. Prevost.

* * *

The latest information TELEPHONY has is that, in addition to the action in the above three states, the states of Michigan, New York and Washington have made it unlawful to refuse to yield a party line for an emergency call; and also unlawful to claim a party line for emergency use when no emergency exists.

Legislation to accomplish similar ends is now in the Ohio Legislature (TELEPHONY, Nov. 27, 1954, p. 42) and the Indiana Legislature (TELEPHONY, Jan. 29, p. 44).

V V

OBITUARY

J. L. ZIEG, district manager for Southern Continental Telephone Co. at Campbellsville, Ky., succumbed to a heart attack on Feb. 19.

Mr. Zieg was born in York, Neb., on Mar. 20, 1893, and began his career in the telephone industry in 1910 with the Northwestern Bell Telephone Co. in Nebraska. In 1925, he moved to Henryetta, Okla., with the Southwestern Bell Telephone Co., and in 1927 he joined the United Telephone Corp., at Wagnor, Okla. In 1930 he became associated with the Oklahoma Telephone Co., at Broken Arrow, Okla., and in 1932 moved to Campbellsville, Ky., as district manager for the Southern Continental Telephone Co.

Mr. Zieg was a director of the Kentucky Independent Telephone Association and took an active interest in community affairs.

Survivors include his widow, Mrs. Nell Kennedy Zieg; a son, R. G. Zieg, Yakima, Wash.; a daughter, Mrs. J. C. Furkin, Campbellsville; five brothers, H. P., Chuck, William and Jake Zieg, all of Omaha, and John Zieg, Los Angeles; two sisters, Miss Mary Zieg, Los Angeles, and Mrs. L. L. Min, Waukegan, Ill., and six grandchildren.

V V

Failure to Give Up Party Line Results in Infant's Death

A woman in Des Moines, Iowa, who is on an eight-party telephone line, tells this story, related the *Des Moines Tribune* on Feb. 18:

"A little over two months ago we were expecting a baby. The day he was born I had to wait 20 minutes for the line before I could call my husband from work to take me to the hospital.

"That wasn't so bad—we still made it in time—but the worst was yet to come.

"A week after we had the baby home, I found him unconscious in his blanket and rushed to the telephone for help. I stood there with a dying baby in my arms, begging and pleading for the line, but was completely ignored.

"Finally, I had to run across the street for help and by the time we got a doctor it was too late. Whether the few minutes I lost trying to get the line would have made a difference I will never know . . .

"This being an eight-party line, we have no way of knowing who it was, or if it was the same party in both instances. How anyone could ignore my desperate plea for help, I will never know. *I do know, though, that I am trying hard to regain my confidence in people.*"

V V

Telephones in Newfoundland

Transportation and communications are major projects in Newfoundland, Canada (population: 353,500 [1950]). During the past five years, 15,000 telephone subscribers have been added to the number of citizens already having telephone service.

Uncover Huge Wire-Tap Set-up in New York City

Police raiding an eastside New York City apartment recently discovered elaborate electronic equipment enabling its two women and two men occupants to make illegal wire-taps on virtually any telephone in the mid-town area, it was disclosed on Feb. 17.

The disclosure was contained in a report turned over to legislative leaders in Albany by the New York City Anti-Crime Committee.

John M. O'Mara, executive director of the committee, said that the raid—revealing one of the biggest wire-tap set-ups in New York history—was "accelerated" by the investigation of the Serge Rubinstein murder case.

Police, investigating the Jan. 29 strangulation-murder of the millionaire draft dodger, learned that he made extensive use of wire-taps in his financial dealings and many amorous adventures.

It was learned that the jealous Rubinstein on one occasion installed an electronic recording device under the bed of one of his girl friends and recorded her conversation from a nearby parked automobile. At other times he made wire-taps on other financiers, enabling him to obtain information valuable to him in his shady financial transactions.

Mr. O'Mara said the intricate equipment discovered in the apartment enabled wire-tappers to intercept conversations made on any telephone in any of six telephone exchanges.

He said the police found the two men and two women in the apartment but made no arrests. The men, both of whom were telephone company employes, have been suspended from their jobs, he said.

The crime fighter said the telephone employe who supervised the intricate wire-tap set-up was making $35 a week for each wire-tap and was intercepting no less than 10 telephones at a time.

Mr. O'Mara said the master wire-tapper paid the second employe a straight $35 a week.

The committee made its report to legislative leaders considering the possibility of laws barring wire-taps.

V V

"The imperative need of this nation, at all times, is the leadership of the uncommon men or women. We need men and women who cannot be intimidated, who are not concerned with applause meters, nor those who sell tomorrow for cheers today."—HERBERT HOOVER, *former President of the United States.*

XUM

Blind Operator Gives Information Service at Minnesota Convention

ARTHUR LOHMAN, blind night information operator for the Minnesota Telephone Co. at Kenyon, Minn., was one of the "most-queried" persons at the convention of the Minnesota Telephone Association, held Feb. 14, 15 and 16 in St. Paul. The 52-year-old man, totally blind since 1925, provided a convention information service for delegates, working from a special convention directory which he set up in Braille.

In the accompanying picture he is punching out another number in Braille. Watching, from left to right, are Eldridge King of Kansas City, Mo., vice president of Loomis Advertising Co., Elnathan Gates of Minneapolis, and Lauren Beran of Redwood Falls, Minn.

The Loomis company, publishers of telephone directories, sponsored Mr. Lohman's appearance at the convention. Mr. Gates is president of Minnesota Telephone Co., and a former Kenyon resident, while Mr. Beran is manager of Redwood County Telephone Co.

Mr. Lohman is widely known throughout southern Minnesota for his work as a telephone information operator. He has a special telephone wire to his home, where he lives with his mother, on which all calls for telephone numbers or other information are transferred after 6 p.m. until 8 a.m. He also answers week-end calls.

This work supplements Mr. Lohman's other income from his day-time job as a piano tuner and repairman. He also handles sales of new and rebuilt pianos, and receives calls to work on pianos from cities as far away as Faribault, Northfield and Rochester, Minn.

Mr. Lohman was born with poor eyesight, and at the age of four had double cataracts removed from his eyes. When 14 he was struck by a baseball in the right eye, and this hastened the process of going blind. In 1925, his sight was gone completely. In 1927 he attended the school for the blind at Faribault, Minn., and learned to read Braille. He also went back there for special courses in later years to learn his occupation as a piano technician. Incidentally, Mr. Lohman can play the piano by ear and in his earlier years also played the accordion for dances and local events.

His Braille directory of the Kenyon telephone exchange runs 30 pages long, but Mr. Lohman has developed amazing speed in looking up numbers from the approximately 1,300 names listed therein. Having lived in Kenyon all his life, he is acquainted with most of the residents and names — including some with tricky spellings and pronunciations—are as familiar to him as they are to their owners.

"There are very few questions which he is unable to answer," asserts Frank Wilson, Kenyon exchange manager. "When necessary, his mother helps him with some of the tougher ones."

Mr. Lohman says the work is very interesting and he especially enjoys the occasional snatches of conversation he has with long distance operators. Being sightless, he has an acute sense of hearing and is quick to catch the different accents and expressions of operators in far-off cities.

When the telephone jangles at his ear at any and all hours of the night and early morning, he's on deck with a prompt and cheerful answer. Company rules forbid him to give the time or to inform curious townspeople where a fire breaks out or the score of local athletic events, but every other question gets fast handling.

V V

Closeness of Head of Rotary To Telephone Industry, Cited

Clark E. Taylor of Galion, O., on Feb. 14 wrote TELEPHONY in reference to the article "The Public Must Be Told the Telephone Service Story" (TELEPHONY, Jan. 1, p. 39), which covered the talk by Harlan W. Holmwood, executive vice president of General Telephone Co. of California, given before the Long Beach (Cal.) Rotary Club. Mr. Taylor made the following comment:

"There is a familiar 'quirk' to this article since my uncle, H. J. Taylor, president of Rotary International, is quite close to the Independent telephone industry. His father, Frank H. Taylor, started what came to be known as the Pickford (Mich.) Telephone Co. He himself was at one time a telegrapher at Seney, Mich. His two brothers, F. Harold Taylor and P. E. Taylor, are active in the telephone business today, F. Harold Taylor being president and P. E. Taylor being secretary-manager of the Pickford Telephone Co., in which Mr. H. J. Taylor also has an interest.

"I am sure that in line with the Independent telephone industry's desire to obtain better communication with the public there is no more understanding individual than the president of Rotary International himself."

V V

"[We will have to devote a] very large part of our skills and our national income [to security as long as man is] saddled in nearly one-quarter of the world by governments which seem to have derived their morals from Ghengis Khan and Attila the Hun."—LEWIS L. STRAUSS, *chairman, Atomic Energy Commission.*

Designed to save time...

INTERNATIONAL cab-forward RC-180 Series equipped with special line construction body with 4-man integral crew compartment. Famous Comfo-Vision cab. Choice of gasoline or LPG power. GVW ratings, 17,000 to 21,000 lbs. Wheelbases, 112 to 172 inches.

Built to save money

There's nothing like cab-forward INTERNATIONAL models to cut the costs of service jobs requiring the transport of bulky equipment and a number of men.

These short-wheelbase trucks, with their short turning radius, provide quick, easy maneuverability in narrow alleys, congested streets and other hard-to-get-around-in areas. They spend less time getting to the job and away from it—let your crews do more productive work each day.

And these INTERNATIONALS save you money further because they are built with famous INTERNATIONAL quality, Tough-Job engineering and all-truck design. Because they have all the features for long life, low-cost operation and maintenance that have made INTERNATIONAL the heavy-duty sales leader for 23 straight years.

Call your INTERNATIONAL Dealer or Branch representative and ask for complete details on the model or models best suited to your needs.

INTERNATIONAL HARVESTER COMPANY • CHICAGO

WORLD'S MOST COMPLETE TRUCK LINE

200 basic models from ½-ton pickups to 90,000 lbs. GVW off-highway models, including six-wheel, four-wheel-drive, cab-forward, cab-over-engine and multi-stop delivery types . . . 32 engines from 108 to 356 hp., with widest choice of gasoline, LPG, or diesel power . . . wheelbases, transmissions, axle ratios for any need . . . thousands of variations for exact job specialization.

International Harvester Builds **McCORMICK**® Farm Equipment and **FARMALL**® Tractors...Motor Trucks...Industrial Power...Refrigerators and Freezers

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INTERNATIONAL® TRUCKS

"Standard of the Highway"

Bell Labs Develops Robot Device For Assembling Transistors

A MACHINE that can automatically carry out a series of more than 15 intricate steps in making experimental transistors—the solid pea-sized amplifiers that have most of the advantages of vacuum tubes—is now in an early stage of development at Bell Telephone Laboratories.

Here is what the unique machine, familiarly known as "Mr. Meticulous," will do in less than one minute:

Take a tiny bar of a special semiconducting material, such as germanium or silicon—a bar almost as thin as a human hair—examine it carefully for electrical characteristics and accept or reject it. If it accepts it, the machine fixes a fine gold wire to a critical point on the bar within an accuracy of 1/20,000 of an inch.

Then, still within one minute, it connects this wire to one of the four wires leading out of the transistor, flips the bar end-over-end, repeats the entire operation with another wire on the opposite side, and finally runs a series of electrical tests on the completed transistor.

Transistors for research purposes must be of the highest precision and accuracy. When fashioned by human hands over any extended period of time, some transistors are produced which are substandard and useless for research purposes. This is the result of fatigue on the part of the technician. But, "Mr. Meticulous" never gets tired, never loses his precision or accuracy. His hand never shakes and his highly organized electronic "brain" rarely has mental lapses.

The machine, originated by R. L. Wallace of Bell Telephone Laboratories, where the transistor was invented, may someday be a pilot model for industrial machines to be used in assembly-line transistor manufacture. At this stage, however, "Mr. Meticulous" is primarily a laboratory device designed to aid research on so-called "junction" transistors.

The commonest form of the junction transistor, now in production at the Western Electric Co.'s Allentown, Pa., plant, is a three-layer "sandwich" of germanium sealed in a metal can a fraction of an inch in diameter. Wire leads connect to each of the three layers and extend outside the can.

The junction transistor performs the same functions as some vacuum tubes —for example, it amplifies the voice and music signals received in a radio set.

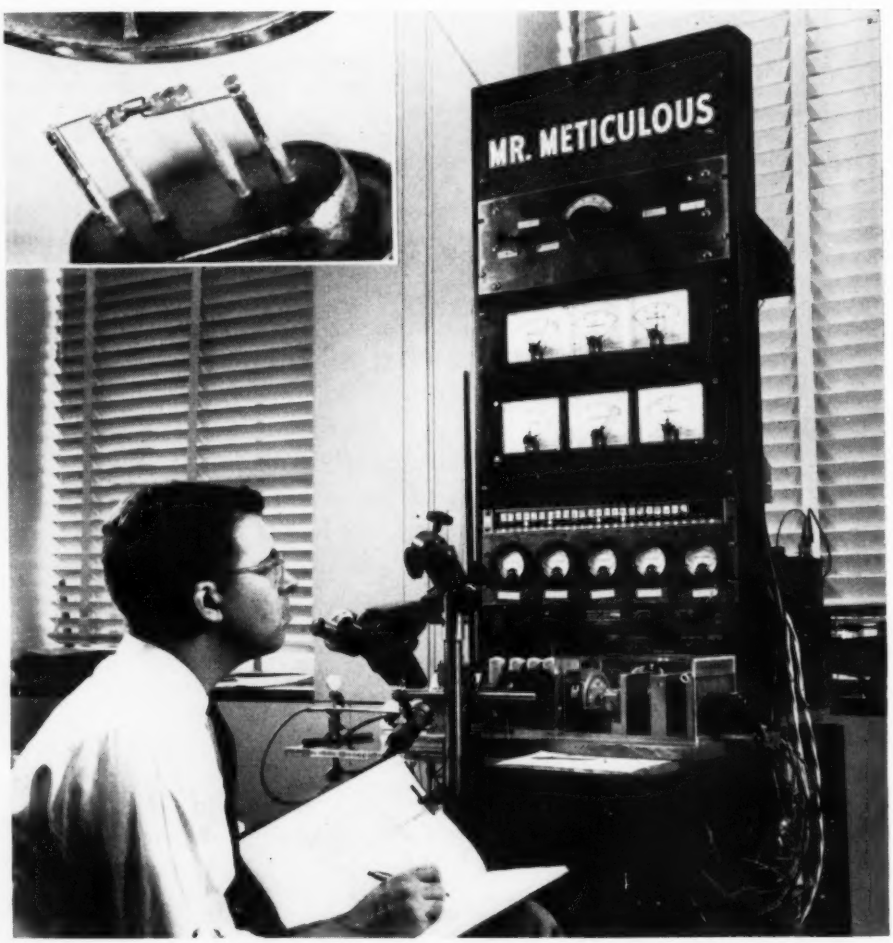
Its three layers of germanium are alternately of two different electrical types: The two outside layers are of n-type (negative) germanium; the central layer is of p-type (positive) germanium. The two junctions of these two different types of germanium give the transistor its name—junction transistor—and are the keys to its operation as an amplifier. An electrical signal introduced at one end of the transistor can be amplified passing through these layers if the proper electrical conditions are established.

The new type of transistor that "Mr. Meticulous" is currently assembling (although he can assemble other junction types as well) has a fourth wire which is attached to the central layer. For this reason it is called a "tetrode" or four-element junction transistor.

Such tetrode transistors are very promising for use at relatively high frequencies and for broadband applications such as television and large bundles of telephone conversations.

The machine operates this way: An operator places an n-p-n "sandwich" of germanium as short as a matchhead and only a little thicker than a human hair, into a clamp on the machine. The machine then presses a very thin strand of gold wire against the bar and the wire edges along the bar with minute steps of 1/20,000 of an inch; after each step the device takes a quick electrical look to see whether it has reached the thin (1/10,000 of an inch) central layer of germanium, to which it must bond the wire. As soon as the wire touches this layer, the machine

(Please turn to page 41)



"Mr. Meticulous," Bell Telephone Laboratories robot device for assembling tiny experimental transistors, goes through his paces under the watchful eye of R. P. RIESZ, Bell laboratories scientist. Inset shows a completed transistor compared with the edge of a United States dime. The wire shown is almost as thin as a human hair.

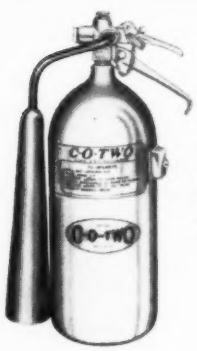
Automatic's pointers for plantmen and managers

Offer "telephone answering service" with the Electronic Secretary

Businessmen in "one-man" offices—such as realtors, doctors, lawyers, radio and television repair men—will appreciate your suggestion that they install an Electronic Secretary. They *need* "someone" to answer the telephone when they're out of the office!

The Electronic Secretary fills this need by receiving incoming calls, and transmitting to each caller a recorded message. A smooth, pleasant voice announces that "Mr. Jones is out," that he'll be back shortly, or tells where he can be reached. It invites the calling party to leave a message, which is then faithfully recorded on wire. When Mr. Jones returns, he can learn the nature of the call by simply playing back the message.

Such a service increases the value of the telephone to your business subscribers, and boosts your revenue. Call your Automatic Electric representative today for full particulars.



A pound of prevention is worth tons of regret!

C-O-Two fire extinguishers contain precious pounds of fire-killing carbon dioxide. This penetrating gas puts out a fire before it has a chance to turn valuable equipment into ashes. The moment the carbon dioxide is released from the tank, it pushes the air aside and quickly encircles the flames. The fire, gasping for air, dies instantly. C-O-Two is harmless to equipment, gives all-around protection. Whether you prefer the lighter, 5-pound units for operators' use or the larger cylinders, make sure you have enough C-O-Two's in your offices and plants.

Cat. No.	Capacity	Each
S-4153	5 pounds	$36.50
S-4154	10 pounds	57.50
S-4155	15 pounds	65.00

The curve of this bar speeds tamping

A simple but important design makes the Dicke curved-head tamping bar one of the handiest tools for tamping dirt around the pole. Crescent-shaped, it slides down easily, packing the earth right up to the pole; fits in narrow machined-drilled holes where other bars might bind. Curved head permits a longer, 7x1⅛ inch tamping surface—packs the dirt down faster with fewer strokes. Be prepared for pole-line construction; order curved-head tamping bars from Automatic Electric today.

Cat. No.	Length of Handle	Each
S-2349	8 feet	$10.85
S-2350	10 feet	12.55

Prices are F.O.B. Chicago and subject to change without notice.

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- **Guard 10 lines**
- **Supersonic splice**
- **Arms to the rescue**
- **Slick slack puller**

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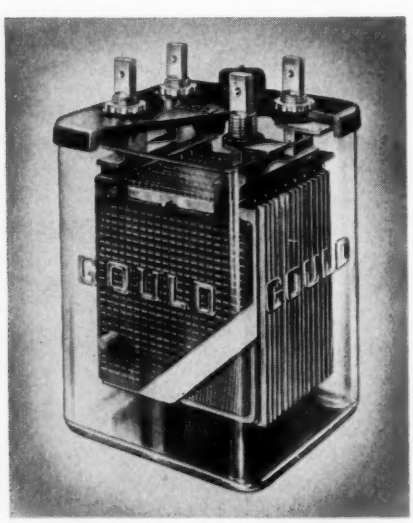
The few dollars you spend on *reliable* equipment today will be repaid a hundredfold in lower maintenance costs for years to come. Protect your investment with the double guarantee offered by Stromberg-Carlson. First, leading manufacturers build this equipment, and guarantee it. Second, because we recommend and sell this equipment to the telephone industry, we *also* guarantee its performance!

Insure your power supply

Because Planté batteries practically last forever...providing standby power that never fails...they're the best operating insurance you can buy. In switchgear, signal and alarm systems, or emergency light and power applications, these lead batteries have rolled up amazing performance records . . . are famous for their ability to deliver a powerful surge or a steady flow of current the instant it's needed. Make sure you're in operation . . . always. Choose Gould Planté.



A sure, dependable supply of power when you need it. That, briefly, is the story of this Gould Planté battery.

The new 5 circuit Hy-Cap Power Cross Protector

Whenever telephones are in joint occupancy with power lines, a heavy-duty protector should protect the telephone lines against destructive power cross.

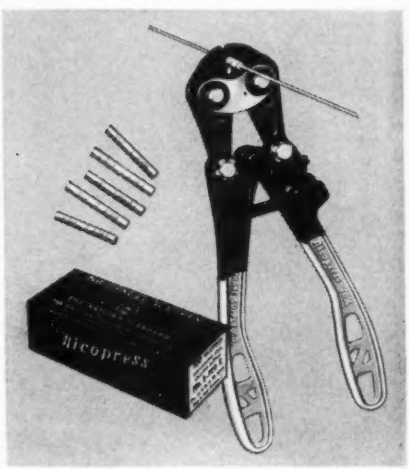
Now—Protect 5 circuits against power crosses with one protector.

Such protection can now be had when the Cook Electric Company's Hy-Cap 5 Pair Power Cross Protector is installed. This unit mounts on a type 10B cross-arm and will protect 10 lines. Connections are made with pre-cut No. 10 plastic insulated copper wires which terminate on rugged discharge carbons. There is just one ground wire for easier installation. The protector will break down at 3000 volts and will continue to ground the fault current as long as it exists.

A single pair Hy-Cap Power Cross Protector is also available.

High-speed splice outlasts the wire itself

You can cut half the time off splicing wires—and get a splice that will actually outlast the conductor itself!



Available for all types of wire: Nicopress sleeves. Special Nicopress tool is easy to use.

Because it is stronger than the rated breaking strength of the wire, you just can't pull apart a joint made with the Nicopress sleeve. It will withstand the toughest strains of vibration, yet makes a neat, compact splice that you can use on drop or inside wires as well as other lines. A tough inner alloy lining—harder than either the sleeve or the conductor – is the secret of Nicopress sleeves' strong grip.

To apply Nicopress sleeves quickly and simply, use the Nicopress tool, which is specifically designed to work together with the sleeves for high-speed splicing.

Foil the Terrible 3

Decay, stress, warpage – these three villains sabotage cross-arm life. You foil these terrible three, when cross-arms are preservative treated and made from selected stock, like the Douglas Fir arms made by American Cross-Arm, Inc.

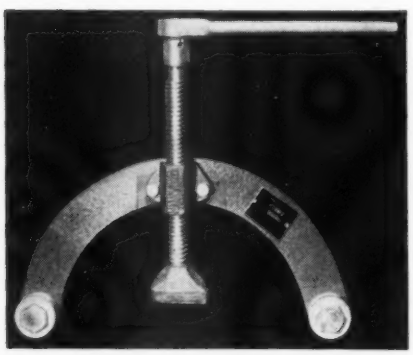
Pine arms, too, are carefully selected, seasoned and treated for longer life.

Quick deliveries from strategically located stocks. Lower your plant equipment replacement costs, with American Cross-Arms.

Take up slack
With a twist of the wrist

Rugged! Easy to use! Rust-protected! Here's a real he-man tool, in compact size.

The LG12 Little Giant slack



"Little Giant" makes cable slack pulling easier.

puller consists of a ¾" x 2" hot-rolled steel yoke, with 2" cold-rolled steel rollers attached to the yoke by a ¾" steel shoulder stud.

Tightening screw is finest steel with 1" square thread. Ratchet handle, designed for easy action, or ½" cold-rolled steel slip handle with free slippage within the screw head. All steel cold-rolled parts are cadmium plated. Steel yoke is painted.

Width: 20". Height: 15". Weight: 18 lbs.

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USITA Outlines Program Plans for Spring Conference in Florida

MANAGEMENT problems confronting the Independent telephone industry in this bustling, dynamic era of change, growth, and expansion will be in the forefront when executives of hundreds of telephone companies, large and small, from all sections of the United States assemble for the annual spring conference of the United States Independent Telephone Association to be held on Apr. 4 and 5 at the Belleview-Biltmore, Belleair, Fla.

Industrial leaders, all competent in every branch of the telephone business and each thoroughly conversant with its past achievements and future challenges, will discuss various topics, ranging all the way from toll compensation studies, and a fair rate of return upon capital invested, to employe relations, public relations, and advertising.

Presiding over the session will be the national organization's president, Donald H. Campbell, operating head of the Rochester (N. Y.) Telephone Corp. The telephone men and their wives will be welcomed by Carl D. Brorein, president of the host company, Peninsular Telephone Co., Tampa, Fla., who is a director and treasurer of the association.

President Campbell will then address the gathering on the topic "Our Job As It Looks To Me." He will be followed by Lewis T. Hayner, consulting engineer, Chicago, Ill., who will discuss "Progress in Conducting Toll Compensation Studies—Line Haul Prorate and Schedules 'A' and 'B.'"

The first morning's session will be brought to a conclusion with a question-and-answer period presided over by the following "panel of experts": W. R. Jarmon, president, General Telephone Co. of the Northwest, Spokane, Wash., and chairman, USITA Toll Compensation and Settlements Committee; A. W. Lambert, California Water & Telephone Co., San Francisco, Cal., and Ralph W. Shriner, staff engineer, Peninsular Telephone Co.

On Monday afternoon, Apr. 4, Thomas A. Boyd, vice president, General Telephone Corp., New York, will lead off with a discussion of "Considerations Which Should Enter Into Determination of a Fair Rate of Return."

The association then will be addressed on the topic "Management and Its Relationship to Employes" by Walter F. Roberts, personnel director, Lincoln Telephone & Telegraph Co., Lincoln, Neb.

Questions concerning the afternoon's agenda then will be answered by the following panel: Ray Dalton, vice president, West Coast Telephone Co., Everett, Wash., and chairman, USITA Personnel Committee; Arthur E. Nelson and Clarence H. Ross, both Chicago attorneys-at-law.

"An Operating Man Looks at Advertising and Public Relations" will be the subject of an address on Tuesday morning, Apr. 5, by Col. William C. Henry, president, Northern Ohio Telephone Co., Bellevue, O. He will be followed by Francis X. Welch, managing editor, *Public Utilities Fortnightly*, Washington, D. C. (also Washington editor of TELEPHONY), who will examine the subject "Management Looks at Regulations."

The question period then will be taken over by a panel composed of: Carl D. Brorein, president of Peninsular Telephone Co., and chairman, USITA Task Force on Independent Telephone Industry Institutional Advertising; L. W. Hill, president Carolina Telephone & Telegraph Co., Tarboro, N. C.; Donald C. Power, president, General Telephone Corp., New York, N. Y., and R. E. Shotts, vice president, Telephone Services, Inc., Chicago.

Corollary meetings will be held by secretaries of 34 state telephone associations. Also, the national association's 36-man board of directors will hold a session to pass on matters which have arisen since their meeting in connection with the annual convention of the association in Chicago last October.

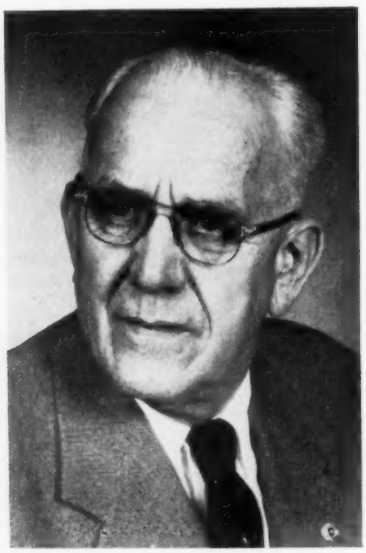
Indications are that one of the largest groups ever to attend a spring conference will be in attendance at the Belleair meeting.

A side trip to Cuba, deep sea fishing, and other related social activities have been arranged by Host Brorein for those who will be able to extend their stay after the closing of the business conference.

XUM

Stearnes New District Manager For Ohio Consolidated

R. N. Cole, president of Ohio Consolidated Telephone Co., Portsmouth, has announced the appointment of Richard C. Stearnes, former assistant district manager, to succeed Burch M. Cline as district manager of the company's Wilmington district, comprised of nine exchanges, namely, Wilmington (main), Blanchester, Sabina, Port William, New Vienna, Martinsville, Clarksville, Greenfield, and Leesburg. Mr. Stearnes' promotion, effective Mar. 1, was made in conjunction with the retirement of Mr. Cline after more than 41 years of service.



B. M. CLINE

R. C. STEARNES

Mr. Cline on Feb. 1 was honored at a party attended by all the company's district managers and the general office staff. At this party, he was presented with several gifts.

Mr. Stearnes has had over nine years of telephone operating experience. He entered the telephone business as a commercial representative at Portsmouth in June, 1945, after leaving the military service. He was in the 40th Infantry Division during World War II and spent nearly four years overseas.

Prior to his transfer to Wilmington as assistant district manager, Mr. Stearnes had been district superintendent in the company's Cambridge district since October, 1951. The Cambridge district serves about the same number of telephone customers as the Wilmington district serves — approximately 7,000. As district superintendent in Cambridge, he has had experience in all phases of district operations.

Mr. Stearnes was born and educated in Portsmouth, O. He attended Ohio State University prior to entering the military service.

V V

More Telephones Presaged In Record Population Gain

The census bureau reported on Feb. 24 that 1954 population gains were the biggest in the nation's history, with births topping 4 million for the first time. The net population gain during the year, the census bureau said, was 2,823,000, a record in the nation's history.

In the five years from 1950 through 1954, the report said, the population increased by 13,378,000, a net gain of one person every 12 seconds. Births in the five-year span came to 19,405,000, or one every eight seconds. In the same five years there were 7,485,000 deaths, or one every 21 seconds. The nation also made a net gain of 1,442,000 from civilian immigration, or one new immigrant each two minutes.

By Jan. 1, 1955, the census bureau said, the nation's population was estimated to be 163,930,000. Births in 1954 totaled an estimated 4,073,000, while deaths, at 1,485,000, were the lowest in four years.

V V

"I have been afraid sometimes that there is a tendency for us to become complacent in the false belief that our industry's future growth is in no way related to our policies and efforts. I am not going to argue the point, but I would like to say with all solemnity that I know of no product, no cause, no idea which has won public understanding and acceptance without that force of active belief variously called selling, or merchandising, or promotion."—SHERMAN R. KNAPP, *president, The Connecticut Light & Power Co.*

TAKE A BIG STEP TOWARD SAFETY WITH DUO-SAFETY LADDERS

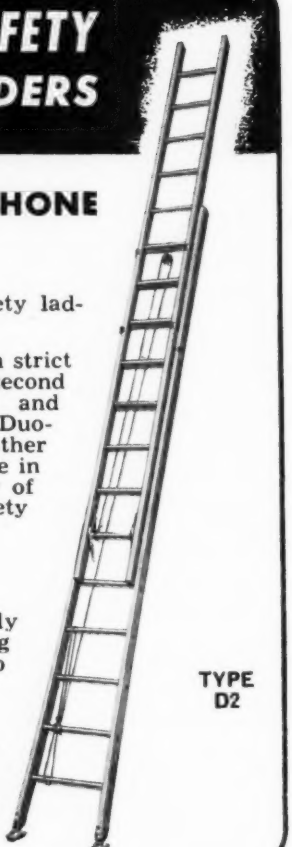
... CUSTOM DESIGNED FOR TELEPHONE MAINTENANCE WORK!

Here's one fine example of the many Duo-Safety ladders ideal for telephone maintenance work.

Type D — a truly great extension ladder built in strict accordance with safety regulations. Rungs are second growth hickory, reinforced with steel rods and equipped with special automatic locks and Duo-Safety's famous Safety Shoes. Made with either straight or parallel side rails, Type D is available in one, two or three sections — in a large variety of sizes. Write for free catalog on all Duo-Safety ladders.

IMMEDIATE DELIVERIES!

Duo-Safety ladders will be shipped immediately upon receipt of order! A planned stock-piling program assures really fast action — there's no delay the Duo-Safety way!



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DUO-SAFETY LADDER CORP.

809 Ninth Street • Oshkosh, Wisconsin

J. I. Kennedy Retires as President of Illinois Company

J. I. Kennedy, president and general manager of the Northwestern Telephone Co. of Freeport, Ill., has announced his retirement, after 55½ years in the telephone field, effective Mar. 1.

J. I. KENNEDY

B. R. ANDERSON

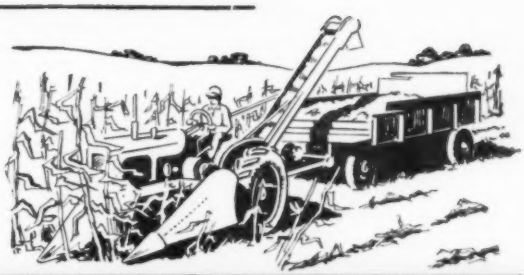
He will be succeeded by B. R. Anderson, now the assistant general manager.

On Sept. 1, 1899, Mr. Kennedy, a native of Lena, Ill., began work for the Freeport Telephone Exchange Co. An older brother had been called in for a job as a night operator and collector. The brother was sick and 14-year-old Jack seized the opportunity and a telephone career began.

Mr. Kennedy left his first job to acquire more telephone experience, as a trouble shooter with Central Union Telephone Co. in Belvidere, Ill., and the Chicago Bell Telephone Co., and with Western Electric Co.

He transferred to the Nebraska

At Southeast Nebraska Telephone Company



It's C&D Batteries for EXTRA life

New C&D Battery installation at Falls City, Nebraska. The Southeast Nebraska Telephone Company has a string of C&D PlastiCal (lead-calcium) cells here—capacity 540 A. H.

Just installed—but with a long, long life ahead—are these C&D PlastiCal Batteries for The Southeast Nebraska Telephone Company. Their job: to provide dependable, round-the-clock service for the busy Falls City area, an important town in the great Cornhusker State.

Like many telephone properties, Southeast Nebraska depends on C&D for reliability. The next time you order batteries, specify C&D. For with C&D you get:

1. **One-piece, permanently-sealed plastic case. Entire unit is shock-resistant... lighter and more compact than glass or rubber.**
2. **Elimination of sudden leaks due to internal stresses.**
3. **Easier maintenance, because patented Post Seal eliminates acid creepage.**
4. **Lower shipping costs. Light plastic case reduces total in-place cost.**

For C&D Batteries—consult your Equipment Supplier.

For details and specifications — write for Bulletins T-527 and T-528.

C&D

BATTERIES, INC.
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Manufacturers of Industrial Batteries since 1906

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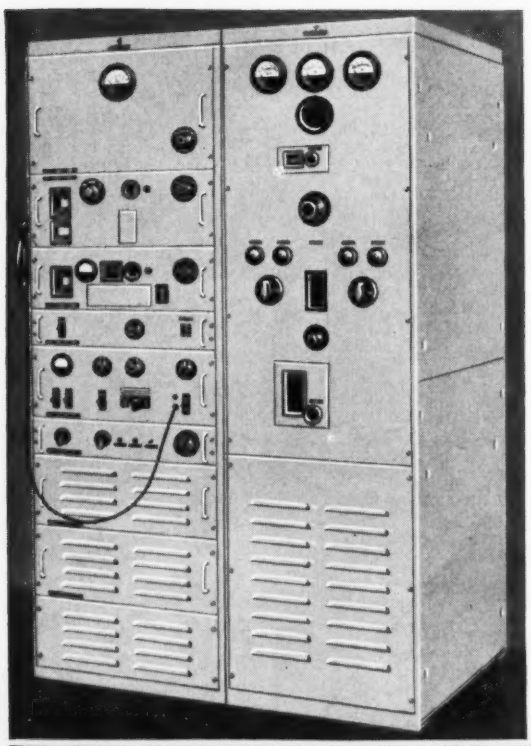
24-CHANNEL VHF FM RADIO SYSTEM FOR LONG LINKS



This radio system makes possible toll-grade transmission of up to 24 3400-cycle telephone circuits over links of 100 miles or more in length. Transmission is in the band of 41 to 68 mc, which is ordinarily available for fixed point-to-point service in remote or inaccessible areas. Transmitter powers of 30, 250 and 1500 watts and antenna gains of 12 to 24 db are available. A single broad-band antenna is used for both transmitting and receiving. The associated carrier-telephone system consists of two 12-channel groups of the type F60 system, and operates in the band of 6 to 108 kc.

Type FM24/50 Radio Transmitter of 1.5 KW output power.

RADIO ENGINEERING PRODUCTS
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MANUFACTURERS OF CARRIER-TELEGRAPH, CARRIER-TELEPHONE AND BROAD-BAND RADIO SYSTEMS

Bell Telephone Co. as assistant wire chief at Grand Island, Neb., in 1906, and was made wire chief at McCook, Neb., in 1908. In 1914, he moved to the company's cable facilities department at Omaha and in 1915 to the plant appraisal division of the engineering department at Omaha.

He resigned this position Oct. 1, 1916, to return to Freeport as wire chief. One year later he was made plant superintendent.

In July, 1934, he was promoted to assistant general manager. Four months later he was elected president and general manager, a position he held for over 20 years. He will continue on the board of directors of the Northwestern Telephone Co.

The Freeport Telephone Exchange Co. was 19 years old when Mr. Kennedy joined it. In 1902 a competing Stephenson County Telephone Co. was organized and in 1910 absorbed the earlier company. In 1931, it became the Northwestern Telephone Co.

Mr. Kennedy has served as a director and past president of the Illinois Telephone Association and as vice president and director of the Independent Telephone Pioneer Association.

His future plans include more travel for Mrs. Kennedy and himself, beginning May 1 with a three-month trip to the West and Northwest. The Kennedys will continue to make their home in Freeport.

V V

Ill. Company's Rehabilitation Record Cited in Post-Dispatch

The success of James and Ida Frye in rehabilitating the Oconee (Ill.) Telephone Co. recently was the subject of a story which appeared in the St. Louis (Mo.) *Post-Dispatch*. Written by a special correspondent, the article covered at considerable length the problems the Fryes faced and how they solved them. The correspondent's opening paragraphs summarize the couple's accomplishments of two and one-half years:

"The Oconee Telephone Co. was on its last legs when Jim and Ida Frye took over in August, 1952.

"About 55 miles of run-down lines and equipment and 89 irate subscribers were the headaches the Fryes inherited when they took over the system. Today the lines and equipment are in good repair and the number of subscribers has been increased to 145."

V V

"Loyalty does consist in agreement that such improvement be brought about after open discussion and by democratic processes." — GRAYSON KIRK, *president, Columbia University.*

ASSEMBLING TRANSISTORS

Concluded from page 34

starts measuring width until the wire reaches the far side of the layer. The machine then decides whether the bar is satisfactory; if it is not, it can be automatically rejected.

If the bar is acceptable, the machine retraces its steps to the other side of the central layer and counts forward a predetermined number of steps. At this point a shot of electric current is used to attach the wire to the germanium. The machine then attaches this wire to one of the four leads of the transistor itself. It then rotates the bar of germanium end-over-end and automatically goes through the same series of operations on the other side of the bar.

Finally the machine runs a series of electrical tests to determine whether the completed transistor has the proper operating characteristics for research purposes.

If the transistor fails any of the tests, it can be automatically rejected. If it passes, "Mr. Meticulous" puts it aside as finished business and goes on to the next bar of transistor material.

V V

» Experts are predicting that our living standards will be doubled by 1975, in large part as the result of automatic machines, according to the Chamber of Commerce of the United States.

SELF INTEREST

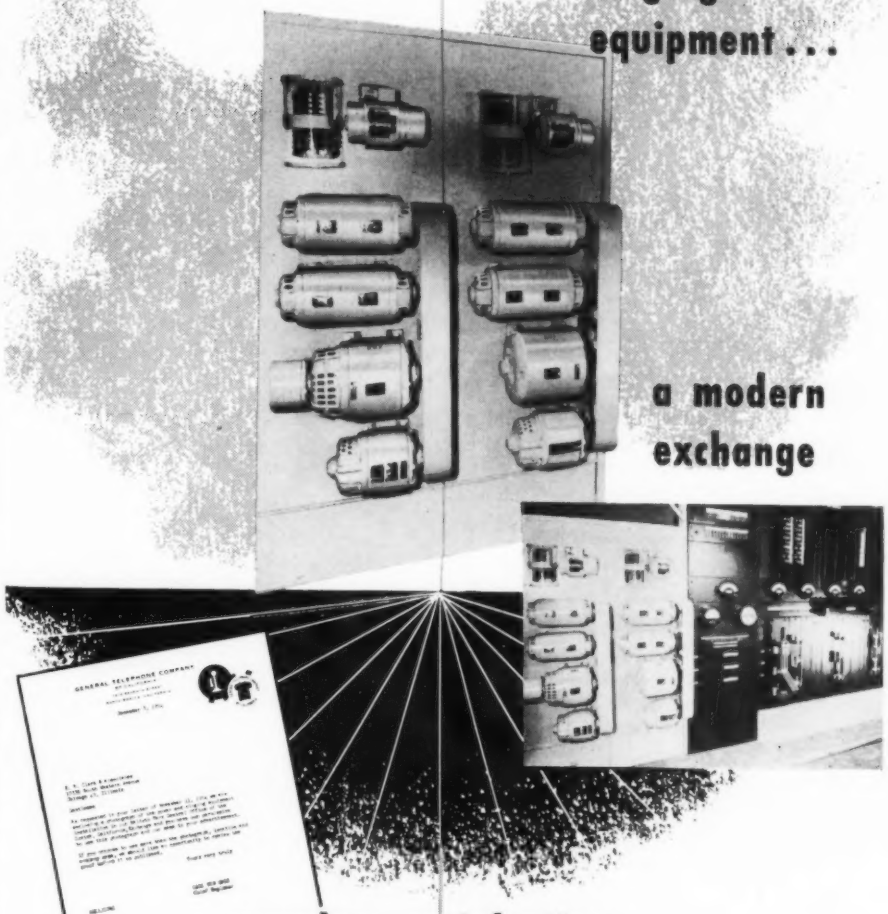
"Sound policies for the use and development of these (our natural) resources must embody the principle of the greatest possible co-operation between private enterprise and all levels of government.

At the same time, the private enterprise must be allowed to manage our natural resources without governamental domination and control, if we are to be assured of maintaining the foundations of America's industrial progress.

No one is more aware today of the necessity of managing and perpetuating these natural resources without exploiting them than are the industries dependent upon them."—FRANK E. MCCASLIN, *president, Oregon Portland Cement Co.*

ESCO VERTICAL

ringing equipment . . .



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EXCLUSIVE ESCO FEATURES — *space-saving vertical mounting*, completely pre-wired to fit into power line-ups. *Advanced Interrupter design*, for accurate and positive timing. *Improved Idler Drives*, with single-point adjustment that stays, for smoother operation, longer life — plus lubricated for life bearings throughout, quality construction of every component. All rotating parts dynamically balanced, and each assembly fully tested.

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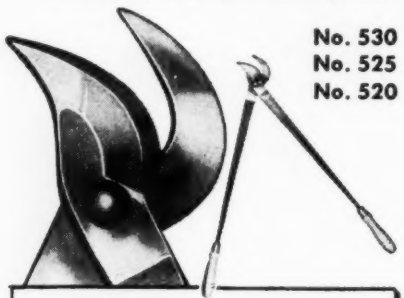

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The *TIFFANY* double cut, efficient "draw-in" cutting action and 100% hammer forged alloy steel parts **PLUS** the *Seymour Smith* improved bolt and nut joint, through handle and riveted grip fastening and thinner cutting edges.

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The standard "Double-Cut" pruner for the expert. Also, the finest of them all, No. 90, 8". $5.50.

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PRUNING SAWS

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A new Seymour Smith development, with blades of finest Swedish steel. Fastest, easiest cutters on the market. Complete line of 6 models covering all requirements up to chain saw work.

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OUR 105th YEAR
The Line of Quality

Prices slightly higher Denver and West

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IN THE NATION'S CAPITAL

Continued from page 18

FCC came before the committee. McConnaughey has been serving under an interim appointment since last November. A number of troublesome things involving FCC have been bothering the Senate committee. For awhile it looked as if they were going to use McConnaughey's confirmation hearings as a sounding board for a general investigation of the FCC.

Senator Price Daniel (D., Tex.) wanted to know if McConnaughey had any prejudice against newspapers owning radio or television stations. McConnaughey said he did not. Senator Kefauver (D., Tenn.), who is not a member of the committee but who was given the usual senatorial courtesy of asking questions, wanted to know what McConnaughey thought about the controversial Lamb Case. This case involves the proposed renewal of a radio station license to a publisher in Erie, Pa., Edward O. Lamb, who has been accused by the FCC staff of associating with Communists and being generally sympathetic with their cause. As many readers of this department will already know from their newspapers, the FCC's legal staff got hold of a couple of screwball witnesses who flip-flopped in their testimony. One of the FCC lawyers has since resigned to enter private practice.

But all this got started before McConnaughey was named to the FCC. What's more, it is now pending before an FCC examiner. So under the law, McConnaughey is not supposed to talk about it because some day he will have to pass on it. Senator Kefauver wanted him to express an opinion on it anyhow. McConnaughey replied politely that even if he knew anything about it, which he did not, he certainly did not think it proper to comment on a matter still pending before an FCC examiner. Somebody asked him what he thought about wire-tapping. McConnaughey said he was against it.

Another witness before the committee was Harry R. Booth, Chicago attorney, formerly with the Office of Price Administration during World War II, who objected to the fact that McConnaughey's law firm has represented Bell telephone subsidiaries at the Ohio state level. He thought it was improper for an FCC member to have this background since the FCC may be called upon to determine telephone rates at the interstate level. Booth then tried to ask Senator Bricker (R., Ohio), sponsor of McConnaughey's nomination, some questions about Bricker's connection with the matter. Bricker told Booth he was not answering questions from witnesses. He said that was what the witnesses were there for.

Then, there was quite a bit of pulling and hauling between the Senators. But when the hearings closed and the smoke blew away, all the fuss seemed to be mostly politics; and it appeared likely that McConnaughey's nomination would be approved finally, since several Democratic Senators have already indicated they would go along with the Republicans. This does not mean that FCC is not in for some more sessions on the committee carpet regarding its regulatory policies, wire-tapping and a number of things the congressmen want to get out of their systems.

Along another front, the FCC took a jolt from the District of Columbia Court of Appeals. It was an important decision involving the right of the FCC to limit the number of television (or radio) stations which one person may own. The District of Columbia court ruled that FCC cannot set arbitrary limits on the number of radio or TV stations owned by a single person. The decision in the test came as a surprise to the commission and it brought immediate action from Congress.

The court's decision "poses a grave question as to the adequacy of the Communications Act to prevent monopoly," said Senator Magnuson (D., Wash.), chairman of the Interstate Commerce Committee. The FCC's "multiple-ownership" rules were designed to provide more competition and diversification in radio and television programming and service. The rules set a limit of seven television stations, seven amplitude modulation (standard) radio stations, and seven frequency modulation radio stations in which one person could hold as much as 1 per cent stock.

This particular case was brought by the Storer Broadcasting Co. after the commission refused to consider its application of a new television station in Miami. The three-judge appeals court ruled: "The selection of a certain number, such as five or seven, as a maximum beyond which no multiple owner will be permitted to go regardless of what he may be able to show in his own behalf, is not only inconsistent with, but is contrary to the mandatory provisions of (the Communications Act of 1934)."

The court then went on to say that FCC must give multiple owners "a

chance in a hearing" to plead their own case. Afterwards, the court said, the FCC can make its decision on whether an additional station would be in the public interest. A spokesman for the commission said that the seven-man commission would take up the court's decision soon and decide whether to appeal the ruling to the U. S. Supreme Court.

The FCC lady commissioner, Frieda B. Hennock, favored an appeal. She said the ruling would encourage monopoly. She thought that the overturned regulations themselves were not strict enough, and she favored limiting ownership to three TV stations. Senator Magnuson said the court's ruling would be taken up by the Interstate Commerce Committee. That makes one more log on the congressional fire for the FCC. Ought to be a hot time up on Capitol Hill pretty soon for the full commission.

WORKING WITH PEOPLE

Concluded from page 25

cially where your people's idea of what you think of them is concerned.

You should look for the best that is in a person. If you do you will get the best. Look for the worst and lo and behold, you usually get the worst. Your people don't have to be told how you feel toward them—they sense it. The kind of job they do is usually a reflection of your opinion of them.

The ability to recognize talent is characteristic of a good leader. He finds hidden talents because he is forever searching for them.

Small things sometimes mean a great deal. Some people do not perform at their best when they are annoyed by minor irritations.

It does not mean you are pampering a person, just because you give his feelings consideration—it means fairness, good judgment, impartiality, showing an honest interest but not prying into something that is personal and no concern of yours.

If you are to improve the relationship between yourself and your people you should know your fellow workers well. A real leader studies his people and plans the method and timing of his contacts.

Your people must know you are trustworthy, that you can be relied upon to keep confidences and to do what you say you will do, even though you might decide at the last moment you'd rather do something else.

$78,000,000 Expansion in 1955 Planned by General Telephone

General Telephone System's consolidated earnings per share on the shares outstanding at the end of the year for 1954 were equal to $2.76, as compared with the 1953 figure of $2.65 per share after giving effect to a 50 per cent stock dividend paid on May 15, 1954. On the average shares outstanding, the earnings per share for 1954 and 1953 were $2.86 and $3.02 respectively.

In making the year-end figures available, General Telephone's president, Donald C. Power, pointed out that total operating revenues reached a new high for 1954 and totaled 174 million dollars, of which 142 million dollars were from telephone operations, and 32 million dollars were from manufacturing, supply and directory operations, as against 149 million dollars for 1953. Net income was $16,170,000, an increase of more than 2 million dollars over 1953 results.

Mr. Power added that General Telephone System had budgeted a record 78 million dollars for expansion in 1955. Continued emphasis on conver-

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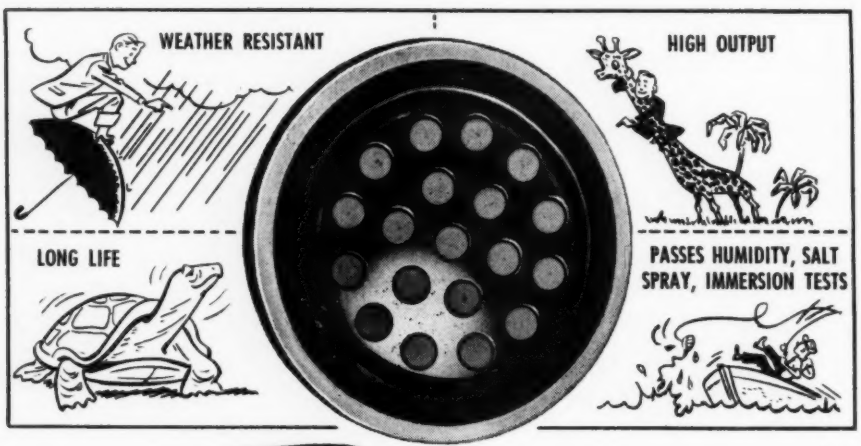

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Completely sealed with chemically inert materials, against all outside contamination; results in a minimum loss in output after extensive usage...Weather resistant; made to meet or exceed usual government specifications regarding humidity, salt spray and immersion... Electrically and mechanically interchangeable with all F-1 type transmitters.

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sion to dial operation, now 75 per cent of General's total telephones, plus new buildings and additions to plant facilities and equipment, are the major items.

"General Telephone System will have a total plant investment of more than 500 million dollars by the second quarter of 1955," Mr. Power continued. "This is an increase of 230 million dollars in less than 5 years."

Total telephones in service for General Telephone System companies totaled 1,804,013, as of Dec. 31, 1954, a gain of 123,569 for 1954.

V V

COMMUNITY TELIVISION

Concluded from page 20

paying the construction cost, and a monthly service charge which defrays the expenses of operating and maintaining the system.

While the TV cable company constructed and operates the master receiver at Crow Creek Hill and the cable system in Casper, the radio relay towers were constructed and are maintained by the Mountain States Telephone Co., which leases the relay service to the cable company.

Standby emergency power is provided at the master receiving station and at the isolated radio relay towers by Onan 10 KW engine driven generators. These are assuring the people of Casper many uninterrupted hours of pleasure, news, education through the magic screen of their living-room television sets.

V V

BOOK REVIEW

"WHAT EVERY ENGINEER SHOULD KNOW ABOUT RUBBER," by W. J. S. Naunton, M.A., M.Sc., Ph.D., Dip.Chem., F.R.I.C. 128 pages. Illustrated. Price, 50 cents, including postage (payable in advance). Obtainable from: Natural Rubber Bureau, 1631 K St., N.W., Washington 6, D. C.

"The unique properties of rubber," the author states, "make it a valuable material for numerous applications in engineering, but while the engineer is fully conversant with the properties and uses of various metals which he has to employ, he is frequently not so well versed in the characteristics and applications of rubber."

"What Every Engineer Should Know About Rubber" is essentially practical in scope, the Natural Rubber Bureau says. The author was formerly in charge of the rubber laboratories of Imperial Chemical Industries Ltd.

where, during World War II, much research and development work was conducted. In the course of this work the author had contact with many engineers and this experience has enabled him to view the subject from the point of view of the engineer wishing to incorporate rubber in his designs.

Over half the book is devoted to specific engineering uses of rubber. In the remainder, the sources, properties, manufacture and testing of rubber are covered. A chapter on manufacturing has been included to enable the engineer to acquire the necessary background knowledge of the material.

The 128-page book is copiously illustrated with photographs and diagrams. Few engineers will fail to find something in this publication to interest them and it may well suggest a solution to a variety of engineering problems.

Chapter headings include: Rubber and the Engineer; Properties of Rubber; Rubber Technology; Uses of Rubber in Engineering, and Testing. The book is indexed.

V V

What Americans Have Done With Their Postwar Savings

Since the end of World War II Americans have saved 115 billion dollars out of their personal incomes. This means that during the nine-year period, 1946 through 1954, their total spending for consumption was 115 billion dollars less than the total income they received, according to the National Association of Manufacturers.

The largest share of the savings total was kept in liquid form—cash, bank deposits, savings and loan shares, and government securities. Actually, individuals added about 66 billion dollars to their holdings of this type during the period under review. Offset against this is an increase of 20 billion dollars in consumer indebtedness, chiefly for goods purchased on installment. Thus, the increase in liquid savings net of the increase in debt was 46 billion dollars.

In appraising the importance of postwar accumulations of liquid savings it must be remembered that they have been added on top of the liquid assets in the hands of individuals at the end of the war—amounting to more than 150 billion dollars. Individuals now hold liquid assets of well over 200 billion dollars.

The second most important of the uses to which postwar savings have been put is the purchase of insurance. Individuals invested about 38 billion dollars in insurance during the years 1946 through 1954.

During the same years Americans put 13 billion dollars of their savings into their own homes. Actually the value of the homes built since World War II is far in excess of this amount —about 75 billion dollars. However, most of the cost of these homes was borrowed on mortgage — rather than provided out of the savings of the purchasers. The 13 billion dollars represents savings applied to down payments or to subsequent amortization of the mortgages.

Finally, 18 billion dollars of individual savings were invested by the savers in business enterprises—either by purchase of corporate securities or by investment in unincorporated enterprises, including farms.

It is significant that individuals have preferred to keep about three quarters of their savings in the forms involving definite dollar claims—insurance, cash, bank deposits, government bonds, etc. Of course, some part of this goes indirectly into business investment, as for example through the insurance companies and savings banks. But only about 16 per cent of postwar personal savings have been invested directly by the savers in business enterprises.

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NORTH ELECTRIC MANUFACTURING COMPANY, 501 South Market Street, Galion, Ohio

George Morse Elected Secretary of Reliable

George Morse, manager of telephone sales of Reliable Electric Co., of Chicago, has been elected secretary of the company, it was announced recently. He will continue as telephone sales manager.

Mr. Morse, who has had 30 years service in the telephone operating and manufacturing fields, has been associated with Reliable Electric since July, 1937, when he joined the company as sales engineer. He became manager of telephone sales in 1949.

Mr. Morse is presently a member of the Telephone Equipment Section of the National Electrical Manufacturers Association, and chairman of the Convention Exhibitors Committee of the United States Independent Telephone Association.

In his position with the Reliable company, Mr. Morse has traveled extensively over the country, attending state and national telephone conventions, and has built up a wide acquaintance in the Independent telephone industry.

Prior to joining Reliable Electric Co., he was associated with the Northwestern Telephone Co. of Freeport, Ill., where he was born on Feb. 23, 1907. He worked for a predecessor company—Stephenson County Telephone Co.—on a part-time basis while he was attending school, going on a full-time basis in June, 1925. His experience there covered outside plant, commercial, central office and management.

GEORGE MORSE

In 1930, he was placed in charge of plant and commercial operation of the Northwest Telephone Co., which was under the same ownership and management as the Stephenson County Telephone Co.

In 1931, when the two companies were merged into the present Northwestern Telephone Co., he entered the management division and later became assistant general manager, the position he held when he joined the Reliable Electric Co.

V V

Line Material Co. Establishes New Branch Offices, Warehouses

R. G. Wheaton, vice president, marketing and sales, has announced the recent openings of new Line Material Co. sales offices and warehouses in Nashville, Seattle, and San Francisco.

The Nashville branch office and warehouse, having a total space of 7,800 square feet, is located at 1503 Laurel St. Marketing activities from the new facility will cover eastern and central Tennessee. B. E. Adair, L-M field engineer, will make it his headquarters, while office and warehouse activities will be handled by E. Bynum, branch manager.

The office and warehouse in Seattle, located at 1220 W. Nickerson St., occupies a total of 12,000 square feet of space. Headquartering here are A. G. Simpson and P. B. Holden, field engineers, while C. A. Paynter is responsible for branch manager duties. The

Springtime will soon be here
During which, construction blossoms —far and near!

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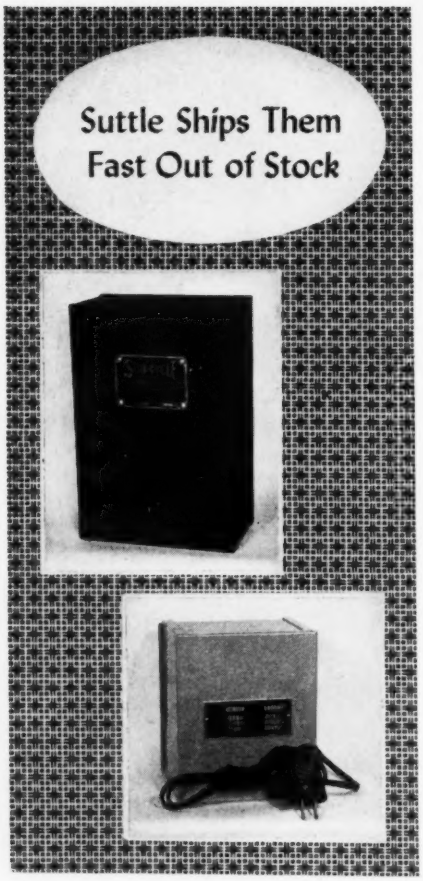
Charlotte†	Denver	Kansas City, Mo.	New Orleans	Rochester†	(†sales office only)

XUM



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new facilities will serve western Washington.

In South San Francisco, the new office and warehouse is at 360 Shaw Rd. It has 17,000 square feet of space. Making their offices here are W. T. Neikirk, district manager; E. M. Stites, field engineer; H. T. Zamzow, apparatus engineer; B. V. Kunde, lighting engineer; H. C. Puls, fibre products engineer, and T. Frost, branch manager.

According to Mr. Wheaton, the new facilities will enable L-M to expand its marketing activities and to offer greater customer service.

V V

Stromberg Names Rockwood To Telephone Division Post

John H. Voss, vice president in charge of the telephone division at the Stromberg-Carlson Co., has announced the appointment of William A. Rockwood to the position of assistant to the president in charge of the telephone division.

W. A. ROCKWOOD

Mr. Rockwood, who is a native Rochesterian, attended Yale University, where he graduated in 1939 with a B.A. degree.

He started at Stromberg-Carlson in 1941 in the credit department, and served in the U. S. Army from February, 1942, until March, 1946, advancing to the rank of captain in the infantry, with combat duty in France and Germany. Returning to Stromberg-Carlson after the war, he became office and credit manager of the company's Chicago branch office in 1947, and returned to the Rochester headquarters in May, 1951, as staff assistant in the telephone division.

Mr. Rockwood is a member of the American Management Association.

Cook Electric Co. Opens Seattle District Office

Cook Electric Co., Chicago 14, has opened a northwest district office in Seattle, Wash. with Martin J. Poggie as district manager, according to Charles H. Brunnell, sales manager and vice president.

Mr. Poggie was formerly installation engineer with Airsupply Co., a division of Garrett Corp., Los Angeles,

M. J. POGGIE

Cal. Previously he was with Convair division of General Dynamics Corp.

Mr. Poggie received his engineering degree from California Institute of Technology. He is a member of the Institute of Aeronautical Sciences and the Society of Automotive Engineers.

V V

Graybar Appoints R. N. Ness Manager at San Antonio

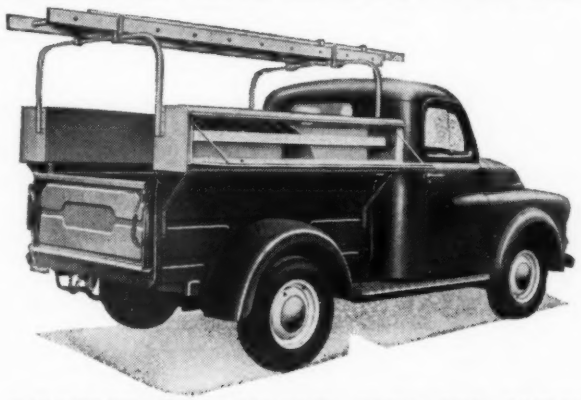
Effective Mar. 1, R. N. Ness was appointed Graybar Electric Co.'s manager at San Antonio, V. A. Elmblad, Dallas district manager has announced. He succeeds J. E. House who will retire July 1.

Mr. Ness joined Graybar in 1940 as a warehouseman at Houston. Two years later he received a military leave, returning to Graybar as salesman at Fort Worth in 1946. He has been manager, district appliance sales, at Dallas until his new appointment. Mr. Ness is a graduate of Concordia College.

V V

Education is the leading of human souls to what is best, and making what is best out of them; and these two objects are always attainable together, and by the same means. The training which makes men happiest in themselves also makes them most serviceable to others. —JOHN RUSKIN, in "Stones of Venice."

STAHL SIDE BOXES



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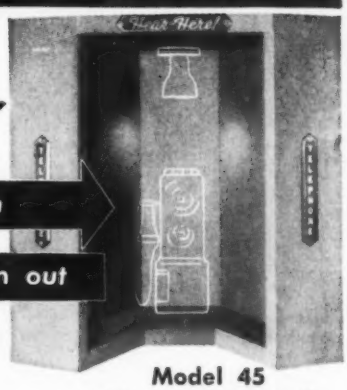

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Builders of Dependable Equipment Since 1935

Gents: We're gonna use this space this week publicly to express our thanks to the very capable Larry O'Lilla. (The apostrophe is ours. We're promoting Larry to an Irishman.) The many extra subscribers now being served by the Chatham Telephone Company, away up there in Michigan, are grateful for the well-executed expansion program. One old-timer remarked to me in excited French-English that he would now be able to call the doctor when his wife required care.

I wonder if you folks in the telephone business will forgive me if I again assert we have the *"finest telephone subscriber carrier that it is possible to design and build."*

Our carrier should give you years and years of dependable service and bring to you many expressions of gratitude from the many new families thus provided with service.

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GORDON G. HOIT, executive vice president of the Stromberg-Carlson Co., who acted as chairman of the American Management Association Special Electronics Conference, held at the Hotel Statler in New York City on Feb. 28 to Mar. 2. He is A.M.A. vice president in charge of this association's finance division.

Hubbard & Co. Buys Division Of Locke Insulator Co.

Hubbard & Co., Pittsburgh, Pa., has purchased the pole line hardware operations of the Locke Insulator Co., Baltimore, Md.

James H. Knowles, president of Hubbard, said the purchase represents another step in expansion of the 112-year-old firm's manufacturing and distribution facilities.

Hubbard recently completed a 1½-million-dollar expansion and modernization program at its three major plants in Pittsburgh, Chicago and Oakland, Cal.

V V

"Nothing is more difficult and more essential than that business subordinate artificial competitive advantages to the welfare of the entire industry and the general public. This is particularly true in transportation. Archaic regulation and unsound promotional activities have naturally created powerful vested interests. Too many beneficiaries of government favoritism and subsidy tend to think in terms of 'after me, the deluge.' The far-sighted transportation executive, on the other hand, knows that threats to other segments of the industry are of vital concern to him. In recommending legislation to the Congress, he should have uppermost in his mind the principle 'united we stand, divided we fall.' "—JOHN W. BRICKER, *U. S. Senator from Ohio.*

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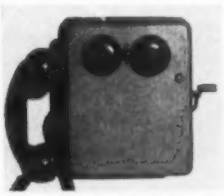
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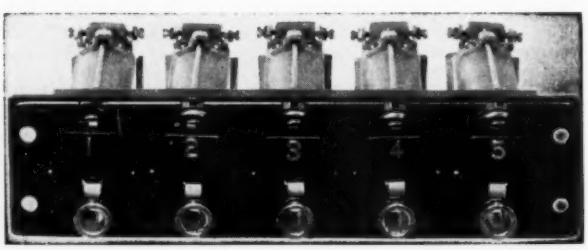

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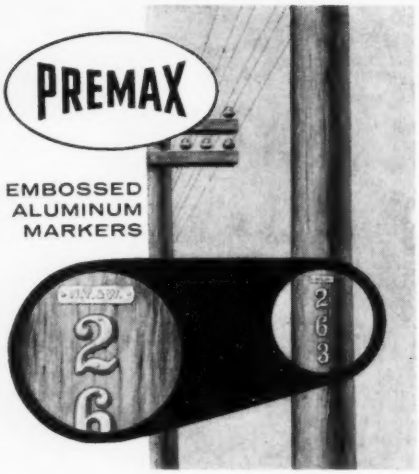

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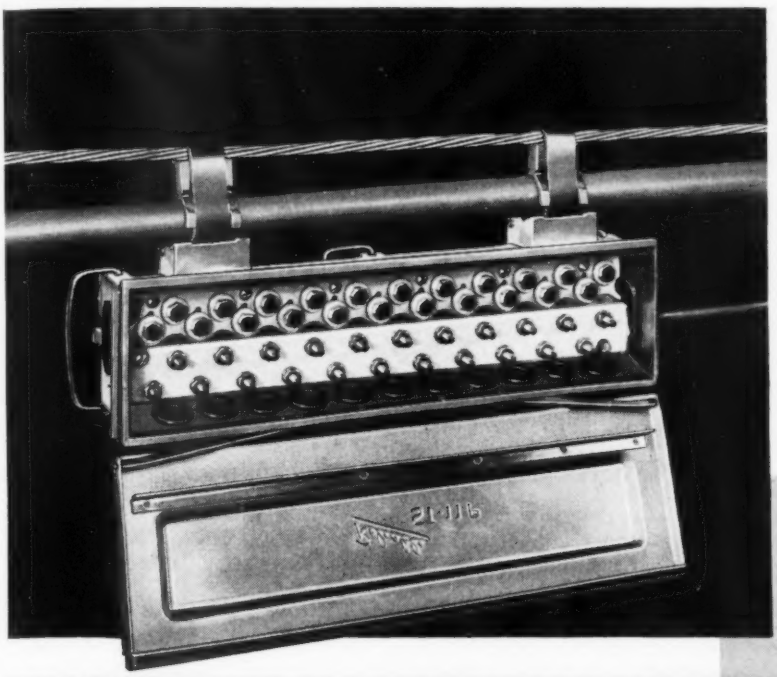

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